NUCLEAR REGULATORY COMMISSION ISSUANCES

OPINIONS AND DECISIONS OF THE NUCLEAR REGULATORY COMMISSION WITH SELECTED ORDERS

January 19, 1975 – June 30, 1975

Volume 1

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‡Became a member of the Appeal Panel effective Apr. 27, 1975.

PREFACE

This is the first volume of issuances of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Appeal Boards and Atomic Safety and Licensing Boards. It covers the period from January 19, 1975, the date when the Nuclear Regulatory Commission came into existence, to June 30, 1975.

Atomic Safety and Licensing Boards are authorized by Section 191 of the Atomic Energy Act of 1954. These Boards, comprised of three members, conduct adjudicatory hearings on applications to construct and operate nuclear power plants and related facilities and issue initial decisions which, subject to internal review and appellate procedures, become the final Commission action with respect to those applications. Boards are drawn from the Atomic Safety and Licensing Board Panel, comprised of lawyers, nuclear physicists and engineers, environmentalists, chemists, and economists. The Atomic Energy Commission first established Licensing Boards in 1962 and the Panel in 1967.

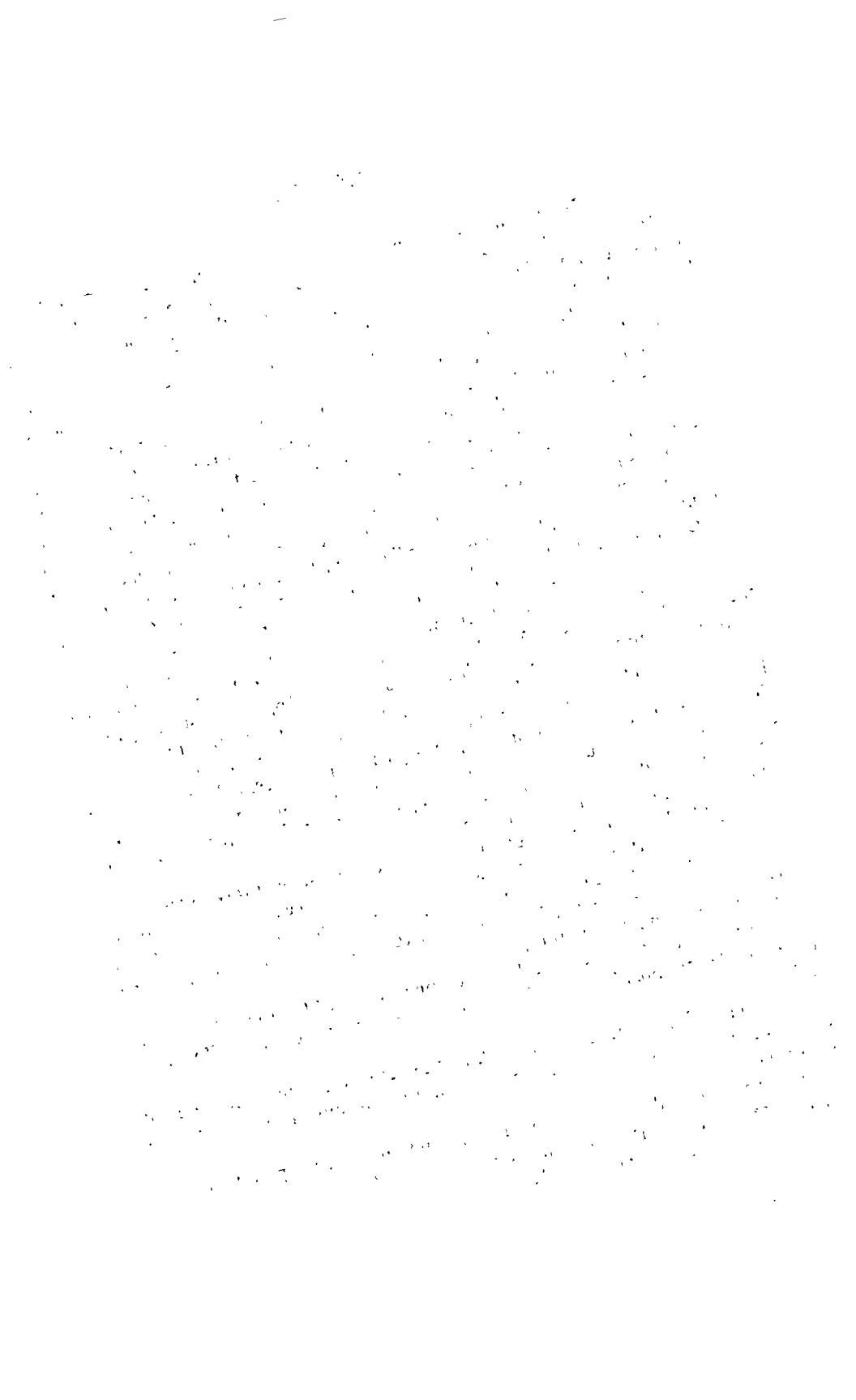
Beginning in 1969, the Atomic Energy Commission authorized Atomic Safety and Licensing Appeal Boards to exercise the authority and perform the review functions which would otherwise have been exercised and performed by the Commission in facility licensing proceedings. In 1972, that Commission created an Appeal Panel, from which are drawn the Appeal Boards assigned to each licensing proceeding. The functions performed by both Appeal Boards and Licensing Boards were transferred to the Nuclear Regulatory Commission by the Energy Reorganization Act of 1974. Appeal Boards represent the final level in the administrative adjudicatory process to which parties may appeal. The Commission may, however, on its own motion, direct the certification of the record of any proceeding for review by it.

This volume is made up of reprinted pages from the six monthly issues of the Nuclear Regulatory Commission publication *Nuclear Regulatory Commission Issuances (NRCI),* for this time period, arranged in chronological order. Cross references in the text and indexes are to *NRCI* page numbers, which are the same as the page numbers in this publication.

Issuances are referred to as follows: Commission—CLI, Atomic Safety and Licensing Appeal Boards—ALAB, and Atomic Safety and Licensing Boards—LBP.

The summaries and headnotes preceding the opinions reported herein are not to be deemed a part of those opinions or to have any independent legal significance.

The material in this volume was indexed and prepared for printing by the Energy Research and Development Administration, Office of Public Affairs, Technical Information Center, Oak Ridge, Tennessee.



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Issuances of the Atomic Safety and Licensing Boards

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

CLI-75-1

COMMISSIONERS:
William A. Anders, Chairman
Edward A. Mason
Victor Gilinsky
Richard T. Kennedy

In the Matter of

NORTHERN STATES POWER COMPANY

(Prairie Island Nuclear Generating Plant, Units 1 and 2)

Docket Nos. 50-282
50-306

January 27, 1975

Upon review of ALAB-252, Commission adopts ASLAB's legal ruling concerning intervenor cross-examination rights (subject to ASLAB's strictures confining its scope), finding it both a proper interpretation of Commission regulations and a vital ingredient to open and full consideration of licensing issues.

ALAB-252 affirmed.

RULES OF PRACTICE:
CROSS-EXAMINATION BY INTERVENORS

In order to assure meaningful public participation in the adjudicatory process, in both operating license and construction permit proceedings, an intervenor must be afforded the opportunity to cross-examine a witness on matters which have been placed into controversy by any of the parties to the proceeding—so long as that intervenor has a discernible interest in the resolution of the particular matter.

MEMORANDUM AND ORDER

In ALAB-252,[1] the Atomic Safety and Licensing Appeal Board reaffirmed its recent holding that "[i]n both operating license and construction permit proceedings, an intervenor can and should be afforded the opportunity to cross-examine on those portions of a witness' testimony which relate to matters

[1] RAI-75-1 1175 (January 6, 1975).

which have been placed into controversy by at least one of the parties to the proceeding—so long as the intervenor has a discernible interest in the resolution of the particular matter."[2] Denying a Regulatory Staff petition for reconsideration, the Appeal Board noted that this holding relates to "a legal issue of clear recurring importance" that "could well have an impact upon the course of many licensing hearings." For these reasons, and because the holding is alleged by the Regulatory Staff to be in conflict with Section III(a)(3) of Appendix A to 10 CFR Part 2 of our rules of practice, we have decided on our own motion to review.

We agree with, and affirm, the Appeal Board's interpretation of our rules. By undertaking this review on our own initiative, we wish to underscore the fundamental importance of meaningful public participation in our adjudicatory process. Such participation, performed in the public interest, is a vital ingredient in the open and full consideration of licensing issues and in establishing public confidence in the sound discharge of the important duties which have been entrusted to us. It cannot be disputed that only if our rules provide for, and are perceived by all to allow, "full exploration of the safety and environmental aspects of each reactor for which a construction permit or operating license is sought,"[3] will the objective of such meaningful participation be achieved. We do not believe, nor do we intend, that this interpretation of our rules will lead to "open ended" examination, as the staff fears, or "needless and unproductive delay", as the hearing board anticipated. As stated by the Appeal Board, such inquiry shall be "strictly confined to the scope of the direct examination in order to insure that it does not have the effect of expanding the boundaries of the contested issues."[4]

Subject to the strictures spelled out by the Appeal Board, we deem the Board's interpretation of our rules to be reasonable and correct.

Satisfied that the issues presented here have been fully considered and correctly decided in ALAB-252, we hereby AFFIRM.*

It is so ORDERED.

By the Commission

JOHN C. HOYLE
Acting Secretary of the Commission

Dated at Washington, D. C.
this 27th day of January, 1975.

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[2] RAI-74-11 857, 868 (November 21, 1974).

[3] ALAB-252, RAI-75-1 at 1180.

[4] *Id.*, RAI-75-1 at 1179.

*Commissioner Rowden did not participate in this decision.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-255

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Michael C. Farrar, Member
Dr. Lawrence R. Quarles, Member

In the Matter of

TEXAS UTILITIES GENERATING COMPANY, ET AL.

(Comanche Peak Steam Electric Station, Units 1 and 2)

Docket Nos. 50-445
50-446

Upon *sua sponte* review of Licensing Board's initial decisions in uncontested construction permit proceeding, ASLAB, tentatively finding record incomplete for conducting the requisite NEPA cost-benefit balancing, allows parties the opportunity to show why remand for purpose of supplementing record might be unwarranted.

NEPA: COST-BENEFIT ANALYSIS

Proper cost-benefit analysis of alternative cooling methods requires consideration of the ramifications of the projected benefits and costs of each alternative.

NEPA: COST-BENEFIT ANALYSIS

A necessary cost of constructing a cooling reservoir is removal of a large area of land from present usage; understanding its ramifications requires a close examination of the present and projected need for such land to serve other purposes. *LaSalle* (ALAB-153).

NEPA: LAND-USE INQUIRY

An appropriate inquiry in cases involving the removal of lands presently used for agricultural purposes is whether there exists sufficiently abundant suitable land elsewhere to fulfill the Nation's presently foreseeable demands for agriculture.

FINDINGS OF FACT: HARMLESS ERROR

Reliance on an incomplete land-use inquiry as a basis for findings of fact will not be considered harmless error where further information could upset the cost-benefit balance in favor of a viable alternative.

FINDINGS OF FACT: PRECEDENTIAL VALUE

Factual determinations in uncontested proceedings cannot be used to fill evidentiary gaps in subsequent proceedings.

MEMORANDUM AND ORDER

January 23, 1975

Before us are the two initial decisions rendered by the Licensing Board in this uncontested construction permit proceeding involving the Comanche Peak Steam Electric Station, Units 1 and 2.[1] Since no exceptions were filed to either decision, we have undertaken a *sua sponte* review of the Board's findings and conclusions, as well as of the underlying record. This review has suggested that the record is incomplete on one of the environmental issues considered by the Board. We are therefore directing the parties to show cause, if any there be, why we should not remand the proceeding to the Licensing Board for the purpose of supplementing the record.

1. The applicant proposes to obtain cooling water from a reservoir, which will have a total surface area of 3,228 acres. According to the Final Environmental Statement (p. 4-5), the predominant existing land use in that area is cattle grazing. There are, however, approximately 940 acres of improved cropland and an additional 320 acres of mixed juniper woodland which will be inundated by the reservoir. *Ibid.*[2] As the staff sees it, the reservoir site is to be

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[1] The first decision, rendered on October 11, 1974, dealt with environmental issues, site suitability and the existence of any unresolved safety issues relating to the design and below-grade work on the safe shutdown impoundment dam. LBP-74-75, RAI-74-10 673. We deferred review of that decision pending disposition by the Licensing Board of the remaining health and safety issues. Those issues were adjudicated in a decision rendered on December 12, 1974, which authorized the issuance of construction permits. LBP-74-88, RAI-74-12 1047.

[2] Another 100 acres of cropland will be consumed in the construction of a railroad spur and an access road. FES, p. 5-1.

considered "irreversibly lost" insofar as present usage is concerned. FES, p. i.[3]

In evaluating the impact of this loss, the staff confined its scrutiny to the value of the agricultural production on the reservoir site, which for 1973 was estimated to be $151,300. Since the 1971 combined crop and livestock sales in Somervell and Hood counties[4] totaled $6,841,000, the staff reached the conclusion that the loss would not be "significant." FES, p. 5-2.

The Licensing Board seemingly deemed this analysis to be satisfactory. In addition to at least implicitly endorsing it in paragraph 32 of the October 11, 1974 initial decision, RAI-74-10 at 683, the Board found in paragraph 56 that the alternative of mechanical-draft cooling towers would "offer no significant advantage" over the reservoir. *Id.* at 690-91. It is unlikely that this finding would (or could) have been made had the Board thought that any real importance attached to the withdrawal of the reservoir site from agricultural production. This is because, in marked contrast to the 3,228 acres (*i.e.*, approximately 5 square miles) which will be taken by the reservoir, a mere 10 acres would be consumed by mechanical-draft cooling towers and associated auxiliary equipment. FES, p. 9-15.

We have a different view respecting the sufficiency of the staff's approach. As is reflected by our *La Salle* decisions,[5] to us the appraisal of the environmental costs of diverting substantial quantities of land from agricultural production to a cooling lake or reservoir involves the consideration of factors well beyond the simple computation which the staff made here. The most that that computation tells us is what could readily have been assumed: that the crops and livestock raised on the 3,228 acres at issue represented just a small fraction of the total agricultural production in two rural Texas counties[6] having an aggregate area of 623 square miles (*i.e.*, almost 400,000 acres). See *1974 World Almanac and Book of Facts*, p. 217. But one can scarcely infer from that fact standing alone that the future unavailability of the acreage for agricultural pursuits is a matter of no consequence. Such an inference would be permissible only if it were established that suitable land is in sufficiently abundant supply that, during the period of the life of this facility, it is unlikely that this acreage

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[3] It is not clear whether the staff was suggesting that, upon the decommissioning of the facility at the end of its license term, it would not be feasible to restore the reservoir site to agricultural production should the need arise. In any event, we would think that, at minimum, a significant period would be required to accomplish that objective.

[4] The boundary between those two counties bisects the reservoir site. FES, p. 2-3.

[5] *Commonwealth Edison Co.* (La Salle County Nuclear Station, Units 1 and 2), ALAB-153, RAI-73-10 821 (October 19, 1973) and ALAB-193, RAI-74-4 423 (April 15, 1974). Portions of ALAB-153 other than those relating to land-use were reviewed by the Commission. CLI-73-32, RAI-73-12 1072 (December 7, 1973).

[6] The combined population of those counties in 1970 was slightly in excess of 9,000. FES, p. 2-5.

would be needed to help fulfill the Nation's presently foreseeable demands for agricultural products. *La Salle,* ALAB-153, RAI-73-10 at 822-24.

The record is totally silent on this question. We find this surprising. ALAB-153 was rendered in October 1973, four months in advance of the issuance of the Comanche Peak draft environmental statement and eight months prior to the publication of the FES. The land-use conclusions we reached in that decision were not disturbed by the Commission and thus should have been given precedential effect in the present proceeding. Yet not only were those conclusions apparently given scant regard by both the parties and the Licensing Board but, in addition, the staff did not go even as far in its review of the land-use issue here as it had in *La Salle.* The La Salle FES did at least address itself to the possible need for agricultural purposes of the land to be consumed by the cooling lake there involved (albeit, as we saw it, on the basis of possibly out-dated information).

It is, of course, true that in our second *La Salle* decision (ALAB-193) we upheld the Licensing Board's finding (contained in a supplemental initial decision following the proceedings on remand which had been directed in ALAB-153) that "there is sufficient cropland available in the United States to meet domestic needs and to permit at least modest exports of agricultural products during the projected lifetime of the proposed La Salle facility." RAI-74-4 at 424-25. In so many words, however, we cautioned that "our acceptance of the finding is to be given no significance whatever beyond the confines of this particular case—and most especially is to carry no precedential weight in any other pending or future proceeding in which a licensing board must come to grips with the environmental acceptability of devoting large amounts of prime agricultural land to the facility cooling system." *Id.* at 425.[7] Thus, it would not have been appropriate for the Licensing Board to have attempted to fill the obvious gap in the staff's analysis by pointing to the *La Salle* finding. In any event, it did not purport to do so.

We would add in this connection that nothing has transpired since the *La Salle* decisions to lessen our conviction that the utilization of appreciable land areas for a cooling reservoir is a matter of serious concern, and that it is not an empty ritual to examine closely the potential need for the land to serve other (such as agricultural) purposes in deciding whether the reservoir is the best of the available cooling system alternatives. We can take official notice that the continuing population growth both nationally and world-wide has led many thoughtful students of the subject to predict future shortages of agricultural commodities which might well be felt in the United States. These predictions may be unduly alarmist. But we do not have at hand the ingredients for a confident judgment that they are so wide of the mark that they may be simply brushed aside.

[7] Our reasons for that admonition are spelled out in ALAB-193. *Ibid.*

2. The failure to give adequate consideration to the consequences of the loss of the reservoir site for agricultural use might be dismissed as harmless error if it could be said that there is no viable alternative cooling method available. In fact, however, the FES contains (at p. 9-19) the well-documented conclusion of the staff that "either a reservoir or mechanical-draft wet cooling towers would be acceptable . . . ." The comparison of the two systems made by the staff (see Table 9.2.3 at p. 9-20) indicates that the two systems would cost approximately the same amount to construct and that in most other respects there likewise would be no basis for a clear choice between them. The reservoir does have, however, one decided advantage. The consumption of approximately 0.7% of the electrical output of the station would be required to pump the circulating water through the towers and to operate the tower air fans. No such expenditure would be involved in the use of the reservoir. On the other hand, as previously noted, the towers have the equally marked benefit of consuming relatively little land.

Given these circumstances, we entertain some doubt that the absence of a proper assessment of the impact of the loss of the reservoir site to agricultural production can be deemed to be of no consequence. At first blush at least, it is difficult to see how, without such an assessment, the saving of electrical energy inherent in the use of the reservoir can be found to provide sufficient justification for incurring that loss.

3. Accordingly, although it is not our desire to protract further this proceeding if it can be avoided, our tentative conclusion is that a remand is necessary in the fulfillment of the Commission's NEPA responsibilities. In the second *La Salle* decision, ALAB-193, we quoted an earlier holding to the effect that under NEPA

> Consideration of alternatives to the proposed project must be wide-ranging, embracing, *inter alia,* alternative generating methods, alternative sites, and alternative auxiliary equipment (*e.g.,* cooling towers). Consideration of these subjects requires a comparison of the relative benefits achieved and costs incurred under each of the alternative proposals, so that the optimum alternative may be selected.

RAI-74-4 at 427. It seems to us off-hand that one cannot make a meaningful comparison of benefits and costs without first determining, to the extent possible, the ramifications of each benefit and cost.

We must acknowledge, however, that, despite our endeavor to have taken into account all relevant disclosures of record, some consideration of pertinence may have been overlooked. Since a remand obviously will impose additional burdens upon the parties as well as the Board, it seems appropriate that, before giving effect to our tentative conclusion, we afford the applicant and the staff an opportunity to comment on the question and to provide us with reasons, if any there be, why a remand is not warranted. We are therefore inviting the

submission of memoranda within 25 days from the date of this order.

4. Should the staff elect to file a memorandum pursuant to this invitation, we request that it also address one other matter. In paragraph 65 of its October 11 initial decision, the Board found *inter alia* that

> The specified minimum exclusion distance, low population zone and population center are not more restrictive than many sites previously licensed by the Commission. On the basis of the information presented on population in the vicinity of the facility and the calculated radiological consequences of design basis plants, the Staff has concluded that adequate engineered safety features can be provided to meet the dose guideline values indicated in 10 CFR Part 100 with respect to the exclusion area, low population zone and population center distances.

RAI-74-10 at 694. These findings represented a virtually *in haec verba* adoption of findings which the staff had proposed on August 30, 1974. Their precise meaning, however, is not clear to us.

Principally, we do not understand what the staff meant by the use of the phrase "not more restrictive" in the first sentence.[8] We are especially puzzled regarding the employment of that phrase in connection with the population center concept. As recently noted in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, RAI-74-12 957, 959 (December 24, 1974):

> For the purposes of [10 CFR] Part 100, a "population center distance" is the "distance from the reactor to the nearest boundary of a densely populated center containing more than about 25,000 residents" (10 CFR 100.3(c)). The population center distance must be "at least one and one-third times the distance from the reactor to the outer boundary of the low population zone" (10 CFR 100.11(a) (3)).

"Population center" thus being defined in terms of a specified concentration of residents (25,000), we fail to apprehend how its locale might be determined on a more "restrictive" basis in one case than in another.

Similarly, we do not understand the use of the phrase "not more restrictive" in connection with the exclusion area and low population zone. Possibly, it was meant to compare, either favorably or unfavorably, the geographical size of those areas with that of the corresponding areas surrounding other sites. But although the geographical size of the low population zone is significant for certain purposes,[9] a comparison of size alone is not particularly useful.[10] For,

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[8] Additionally, albeit a minor point, the reference to "design basis plants" in the second sentence is obviously incorrect. Although not certain of it, we think it likely that the staff intended to refer instead to "design basis accidents."

[9] It is significant for its relationship to the population center distance and to the requirement that the radiation dosage limits not be exceeded at the outer boundary.

[10] *Cf.* ALAB-248, *supra*, RAI-74-12 at 962, fn. 11.

even after the size is known, there must be a determination as to whether in view of all relevant factors—including the number of people located within the zone—the public can be protected, by evacuation or other means, in the event of an accident.[11] Nor is the size of the exclusion area of overriding significance; what is more important is whether the applicant has the requisite control over that area.[12] At best, then, the word "restrictive" seems ill-suited for use as a basis for comparing the exclusion area and low-population zone at one site with those at another site. In any event, having chosen to use it, the staff should have explained the precise context in which that word was being employed and the safety implications of the greater or lesser "restriction."

Our independent examination of the record convinces us that the site criteria of Part 100 have been satisfied. We nevertheless do not believe that we would be satisfactorily discharging the review function delegated by the Commission if we failed to seek assistance in the interpretation of significant findings which, on their face, convey no clear meaning to us. It is for this reason that we are asking the staff to explain what it deemed to be the precise import of the findings in question. The applicant may, if it wishes, comment on the matter in its own memorandum.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

[11] See ALAB-248, *supra*, RAI-74-12 at 961.
[12] See ALAB-248, *supra*, Part I-C, RAI-74-12 at 964-966.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-256

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Michael C. Farrar, Chairman
Dr. John H. Buck, Member
William C. Parler, Member

In the Matter of

VIRGINIA ELECTRIC AND POWER COMPANY

(North Anna Power Station, Units 1, 2, 3 and 4)

Docket Nos. 50-338
50-339
50-404
50-405

and
Construction Permit
Nos. CPPR-77
CPPR-78
(Show Cause)

Upon intervenor's exceptions to initial decision in show cause (geologic fault) proceeding, ASLAB upholds Licensing Board's finding that fault underlying site is not "capable", and its conclusion that no undue risk is created by location of four-unit facility on such site.

Upon *sua sponte* review of two related initial decisions in construction permit and Section B environmental review proceedings, ASLAB affirms Licensing Board's (1) grant of construction permits for Units 3 and 4, and (2) authorization of continued effectiveness (subject to environmental conditions) of construction permits for Units 1 and 2.

Initial decisions affirmed.

SEISMIC AND GEOLOGIC CRITERIA:
SCOPE OF INQUIRY

Where Commission has adopted specific policy guidelines in a stated area (see 10 CFR Part 100 Appendix A), the role of the Licensing Board is to measure the facts presented against the specified policy.

SEISMIC AND GEOLOGIC CRITERIA:
PLANT DESIGN

The significance of a geologic fault to plant design is dependent upon whether the fault is a capable one. (Appendix A, Section III(g)).

SEISMIC AND GEOLOGIC CRITERIA: EVIDENCE OF FAULT CAPABILITY

Where age of saprolite can be charted with accuracy, results obtained through its study make possible a conclusive determination of both the latest possible date of fault movement and the relationship of any presently-recorded macroseismicity to the fault.

RULES OF PRACTICE: INITIAL DECISION

In rendering an initial decision, a Licensing Board must make explicit findings of fact, with record references to support its reasoning. *State of Louisiana* v. *Federal Power Commission,* 503 F. 2d 844, 871 (1974).

RULES OF PRACTICE: BURDEN OF PROOF

The magnitude of the burden of persuasion placed upon a litigant is influenced by the gravity of the matters in controversy.

RULES OF PRACTICE: SCOPE OF INFORMATION REQUIRED FOR LICENSING

An applicant is required to prove that there is "reasonable assurance" that the proposed facility can be constructed and operated without undue risk to, or endangering of, public health and safety. 10 CFR Sections 50.35(a)(4) and 50.57(a)(3)(i).

Mr. Michael W. Maupin, Richmond, Virginia, with whom **Messrs. George D. Gibson, George C. Freeman, Jr.,** and **James N. Christman** were on the brief, for the applicant

Mr. William H. Rodgers, Jr., Washington, D. C., for the intervenor North Anna Environmental Coalition

Mr. James E. Ryan, Jr., Assistant Attorney General, Richmond, Virginia, with whom **Attorney General Andrew P. Miller** and **Deputy Attorney General Gerald L. Baliles** were on the brief, for the Commonwealth of Virginia

Mr. David E. Kartalia for the NRC staff

DECISION
January 27, 1975

The Licensing Board has issued three initial decisions dealing with various aspects of the Virginia Electric and Power Company's plans to construct and operate four nuclear powered generating units at the North Anna site.[1] In the first of those decisions, the Board determined, *inter alia*, that there was reasonable assurance that the geologic fault located under the site is not a "capable" one and that the creation of Lake Anna does not threaten to reactivate the fault. Based on these findings, the Board held that the presence of the fault does not require any changes in the design of Units 1 and 2 (for which construction permits were issued in 1971) and has no bearing in deciding whether to permit construction of Units 3 and 4. In the other two decisions, the Board concluded (1) that there is no other barrier to the construction of Units 3 and 4 and that permits for such construction may be issued; and (2) that, while the construction permits for the first two units were issued prior to the Commission's full implementation of the National Environmental Policy Act, environmental values can be adequately protected by adding certain conditions to those construction permits.[2]

The North Anna Environmental Coalition, which intervened in the geologic fault proceeding, took exception to the Board's decision on that matter. The appeal was fully briefed and argued. The other two initial decisions dealt with matters that were uncontested below and were not appealed. Because the geologic fault issue was interrelated with those two decisions, however, we deferred our customary *sua sponte* review of those decisions until this time.[3]

I. THE GEOLOGIC FAULT PROCEEDING

Every nuclear power plant is designed to withstand the effects of potential earthquakes. The steps taken to achieve this purpose differ considerably for each

[1] The three decisions are reported at RAI-74-6 1183 (June 27, 1974); RAI-74-7 126 (July 18, 1974); and RAI-74-10 773 (October 30, 1974).

[2] Three other matters remain pending before the Licensing Board. First, a contested issue relating to the environmental effects of transmission lines was excluded from consideration in the Board's environmental review of the existing construction permits for Units 1 and 2, that issue also being pending before a State agency. The Board announced its intention to hold that issue in abeyance until after the State proceedings are completed. Second, the Board is about to commence a hearing on the intervenor's claim that, quite apart from the merits of the geologic fault issue, action should be taken as a result of the applicant's alleged failure to disclose promptly information concerning its discovery of the fault. Third, intervention has been permitted, and a hearing will be held, with respect to the applicant's request for operating licenses for Units 1 and 2. Our decision today, of course, does not affect the status of any of these pending matters.

[3] See our order of August 29, 1974.

plant, depending upon the nature of the geological and seismological factors peculiar to each site. The ultimate aim, of course, is to anticipate for each site the maximum earthquake that can reasonably be expected to occur and to furnish reasonable assurance that no threat to public safety will be created by its occurrence.

A. Potential earthquake hazards were analyzed prior to the issuance of the construction permits for North Anna Units 1 and 2, taking into account all the facts known at that time. A similar analysis led to the proposed earthquake-protection design of Units 3 and 4. The ultimate question before the Licensing Board was whether denial of the permits, or, at a minimum, design changes, are required by the subsequent discovery of a fault zone under the North Anna site.

In considering that question, the Licensing Board did not write on a clean slate. Extensive guidance was available in the form of the detailed "seismic and geologic siting criteria" which had been issued by the Commission some time earlier and which are applicable to all nuclear power plants.[4] (The regulations embodying those criteria were adopted after consultation with the United States Geological Survey, the federal agency with the most expertise in the subject.[5]) Where, as here, the Commission has spoken definitively, the role of the boards is a limited one. In such instances, they simply measure the facts presented against the specific policy adopted by the Commission.[6]

[4] See 10 CFR Part 100, Appendix A.

[5] See 38 *F.R.* 31279, 31280 (November 13, 1973); see also Tr. 1853.

[6] On rare occasions, we have been required to pass upon questions of reactor safety in the absence of Commission guidance. See, *e.g., In re Trustees of Columbia University,* ALAB-50, 4 AEC 849, 854, (1972), affirmed *Morningside Renewal Council* v. *AEC,* 482 F. 2d 234, 239 (2d Cir. 1973), certiorari denied, 41 L. Ed. 2d 672 (1974). More often, the applicable regulations furnish basic policy guidance without being as definitive as the criteria in issue here. See, *e.g.,* the "low population zone" criteria contained in 10 CFR 100.3(b).

Insofar as is relevant here, the criteria make it clear that the significance to be attributed to the fault under the site depends on whether it is a "capable" one. In that connection, the criteria set forth with precision the characteristics of a capable fault.[7] Thus, if the fault in question were found to exhibit one or more of those characteristics, then, at a minimum, additional safeguards would have to be built into the design of the four units. On the other hand, if none of those characteristics is present, the fault is not capable, and, under the regulations, its presence can be disregarded.

The Licensing Board examined the question of the capability of the fault, as well as the other questions before it, with great care. Its comprehensive and detailed opinion contains a thorough evaluation and analysis of all the evidence,[8] and a thoughtful discussion of each of the subsidiary issues presented.

The Board concluded, *inter alia*, that the fault was not a capable one. RAI-74-6 at 1209. That conclusion was based, in part, on its finding that the fault undoubtedly has not moved for at least the last 500,000 years and, quite probably, has not moved in the last 190 million years. See RAI-74-6 at 1200-06.

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[7] In this respect, Section III (g) of the criteria contains the following definition:

A "capable fault" is a fault which has exhibited one or more of the following characteristics:

(1) Movement at or near the ground surface at least once within the past 35,000 years or movement of a recurring nature within the past 500,000 years.

(2) Macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault.

(3) A structural relationship to a capable fault according to characteristics (1) or (2) of this paragraph such that movement on one could be reasonably expected to be accompanied by movement on the other.

In some cases, the geologic evidence of past activity at or near the ground surface along a particular fault may be obscured at a particular site. This might occur, for example, at a site having a deep overburden. For these cases, evidence may exist elsewhere along the fault from which an evaluation of its characteristics in the vicinity of the site can be reasonably based. Such evidence shall be used in determining whether the fault is a capable fault within this definition.

Notwithstanding the foregoing paragraphs III(g)(1), (2) and (3), structural association of a fault with geologic structural features which are geologically old (at least pre-Quaternary) such as many of those found in the Eastern region of the United States shall, in the absence of conflicting evidence, demonstrate that the fault is not a capable fault within this definition.

[8] The Licensing Board was careful, in its discussion of the evidence, to refer to the precise portion or portions of the record which supported the statements it made. In doing so, it complied in full measure with the Fifth Circuit's recent admonition that an administrative agency should make "explicit fact findings to support its reasoning" and should furnish "record references that demonstrate its fact findings have evidentiary support." *State of Louisiana* v. *Federal Power Commission*, 503 F. 2d 844, 871 (1974).

We have reviewed the record, both before the oral argument and again thereafter. The record does not support those of the intervenor's exceptions which challenge the Board's evaluation of the evidence;[9] owing to the nature of that evidence, the other exceptions are not significant.[10] In this circumstance, we would be fully justified in simply adopting the Licensing Board's excellent opinion as our own, for its factual findings are amply supported by the evidence and we can scarcely improve upon its precise, thorough and compelling reasoning. We nevertheless believe it useful to set forth briefly the major considerations which lead us to reject the intervenor's exceptions and to affirm the Board's decision.

B. Respecting the first of the three characteristics of a capable fault (see fn. 7, *supra*), controlling weight must be given to the results of the study of the saprolite, or weathered rock, found at the site between the soil and the underlying granitic gneiss. In the absence of the saprolite study—the results of which became available only at the latter stages of the hearing—it would be difficult to say conclusively when the last movement of the fault occurred.[11] But the saprolite study demonstrates beyond reasonable question that there has been no discernible movement of the fault in at least 500,000 years.[12]

Saprolite is a fragile material formed by the weathering of sedimentary rock. At the North Anna site, saprolite had formed both from the deep bedrock and from the breccia, or rock fragments, in the fault itself. Any movement of the fault after saprolite formation would have damaged the saprolite. Extensive examination of the saprolite, including microscopic analysis, revealed no such damage, thus indicating that the fault had not moved since the saprolite had formed. Using the most conservative approach for dating the saprolite, it is clear that the part of the saprolite examined must have been created more than 500,000 years ago. (Under less conservative but perhaps more accurate

[9] The brevity of our opinion rejecting the intervenor's exceptions should not be interpreted as reflecting adversely on the quality of the intervenor's contribution to the proceeding. To the contrary, the intervenor's participation was quite valuable. Notwithstanding its undoubtedly limited resources, it assisted greatly in the presentation to the Board of evidence reflecting responsible, conflicting views on the difficult matters before it. It does not detract from the quality of the intervenor's participation either that the Board eventually reached a conclusion different from that urged by the intervenors or that we need say little to express our agreement with that conclusion.

[10] See pp. 16-17, *infra*.

[11] Until the results of the saprolite study became known, the USGS experts had been skeptical of the applicant's claims that the fault was not a capable one. The intervenor's reliance on the disagreements among the applicant, the staff and the USGS is misplaced, however, for those disagreements were essentially swept away by the results of the saprolite study.

[12] This is not to say that other evidence tends to show that the fault has moved more recently. In fact, the principal other evidence—involving the dating of the overlying soil and of joint sets in the granitic gneiss—would not be inconsistent with a finding that the last movement was nearly 200 million years ago. As the Licensing Board explained, however, that evidence does not have the conclusive character of the saprolite study.

approaches, the age of the saprolite was estimated as being between 600,000 and 2,000,000 years.)[13]

We need not rehearse here the Licensing Board's reasons for concluding that the second and third characteristics of a capable fault were not present (see RAI-74-6 at 1206-08). It suffices to note that, although the saprolite study serves directly to negate the presence of only the first of those characteristics (involving the recency of movement relative to the fault), it at least indirectly reinforces the conclusion of the Licensing Board that the other two characteristics are likewise absent.

For example, a fault will be deemed capable, under the second criterion, if it has exhibited "macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault."[14] There is some dispute between the parties as to what result should ordinarily be reached if an adequate macroseismic monitoring network has not been in place for a sufficient time.[15] We need not pass upon that question here,[16] however, for the presence of the undisturbed saprolite establishes that any macroseismicity that may have been felt at the site could not have been as a result of movement across the fault. Thus, in the words of the regulation, it could not have had a "direct relationship with the fault."[17]

C. In these circumstances, the intervenor's position is not advanced by its insistence that an applicant is required to prove its case on significant safety issues "beyond a reasonable doubt" or at least through the introduction of "clear and convincing" evidence. It may or may not be that these formulizations of the appropriate standard of proof represent an acceptable restatement (or

[13] The evidence which we have summarized in the text is identified with particularity in the footnotes to the Licensing Board's discussion of the saprolite, RAI-74-6 at 1203-04.

[14] See fn. 7, *supra.*

[15] The applicant argues that the purpose of the "sufficient precision" language was to protect applicants from unfounded claims that macroseismicity felt in an area was related to a fault. The intervenor argues, on the other hand, that if instruments of sufficient precision are not operative, then the applicant must be deemed to have failed the test set by the second criterion. Otherwise, it asserts, an applicant could always avoid a finding that this characteristic of a capable fault existed simply by failing to set up instruments of sufficient precision. See App. Bd. Tr. 23-31, 52-56.

[16] There is something to be said for both views, and the correct interpretation most likely falls between them.

[17] The third characteristic by which a capable fault can be identified involves "a structural relationship to a capable fault ... such that movement on one could be reasonably expected to be accompanied by movement on the other." (See fn. 7, *supra.*) We adopt, with only a minor modification, the Licensing Board's discussion in which it found that this characteristic was not present. RAI-74-6 at 1206-08. In explaining why certain studies were not made, the Board stated that they would have been made "if there had been a possibility of such structural relationship" between certain geologic features and the fault at the site. Para. 63, RAI-74-6 at 1207. As is obvious from the context and from the portion of the record cited by the Board, it intended to say that the studies for structural relationship to the North Anna fault would have been made "if there had been a possibility that they [the geologic features in question] were capable faults."

implementation) of the "reasonable assurance of safety" test established by the Commission's regulations. See 10 CFR 50.35(a)(4); see also 10 CFR 50.57 (a)(3)(i), discussed in *Maine Yankee Atomic Power Co.* (Maine Yankee Station), ALAB-161, RAI-73-11 1003, 1004-11. We need not, however, reach that question here. For, no matter how the standard is articulated,[18] it plainly has been satisfied in this instance by the results of the saprolite study.

In sum, the evidence shows that the fault at the site has been inactive for at least 500,000 years, and perhaps for as long as 200 million years—and that in no other respect can it be deemed to be "capable." This being the case, there is no substance to the claim that an undue risk is created by the construction of the four units "directly astride a fault."[19] Accordingly, we perceive no reason to require alteration of the design which was established on the basis of all the other relevant geological and seismological evidence.

II. THE OTHER PROCEEDINGS

We have conducted our usual *sua sponte* review of the other two decisions issued by the Licensing Board (see p. 12, *supra*). That review discloses no error warranting corrective action.

Each of the three initial decisions is *affirmed*.
It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

Mr. Parler participated in the Board's consideration of these matters, voted to affirm all three initial decisions, and concurred generally in a draft opinion expressing the Board's reasons for reaching that result. He did not, however, review the final version of the opinion.

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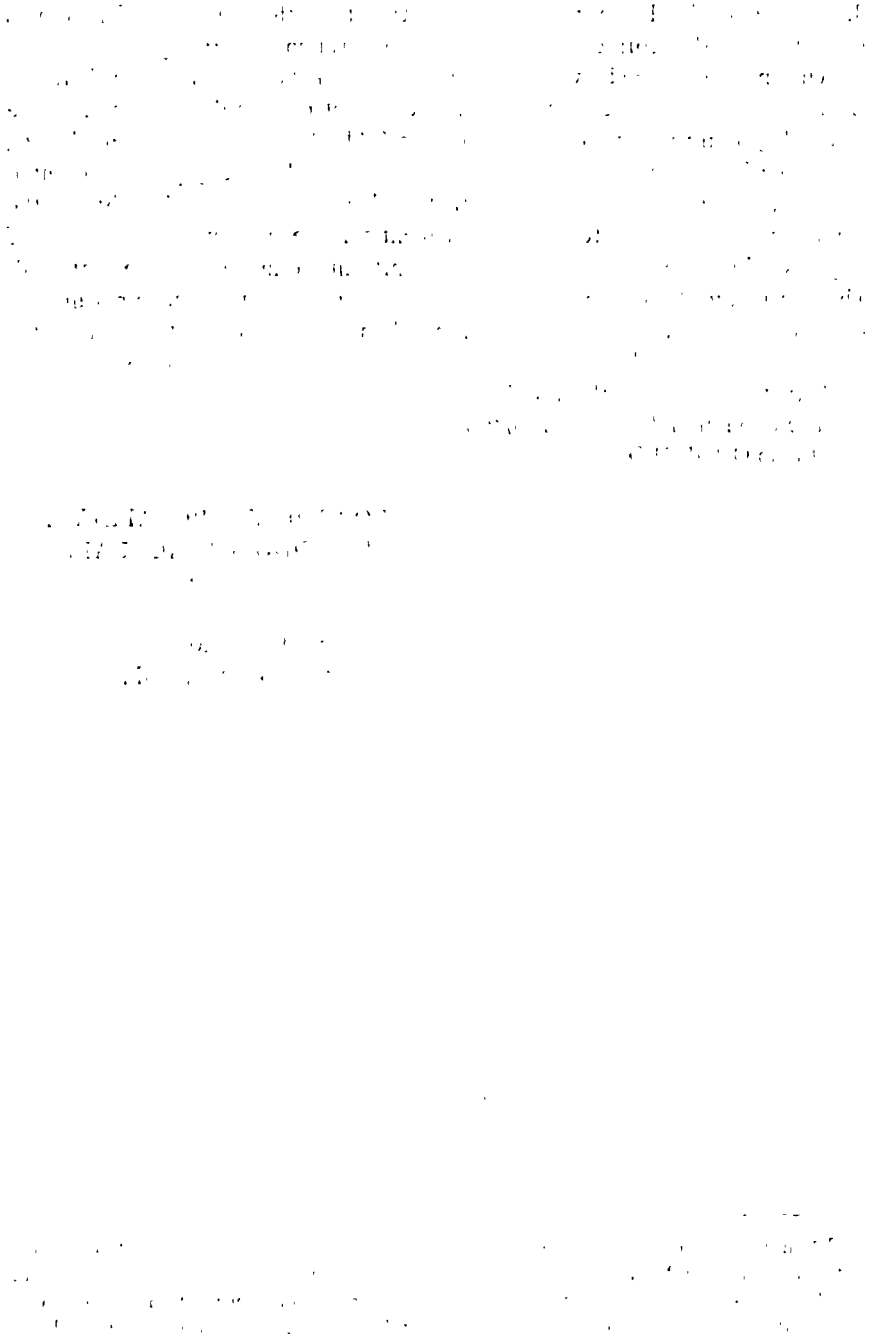
[18] In passing, we note our agreement with the intervenor that, as a general rule at least, the magnitude of the burden of persuasion placed on a litigant should be influenced by the gravity of the matters in controversy.

[19] The intervenor's claim that the impoundment of Lake Anna could reactivate the fault was considered and rejected by the Licensing Board. RAI-74-6 at 1210-17. Having fully considered the intervenor's arguments on that score in light of the evidence, we find the Board's analysis persuasive.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-2

ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Chairman
Dr. Emmeth A. Luebke, Member
Dr. David R. Schink, Member

In the Matter of

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

(WPPSS Nuclear Project, Nos. 3 and 5)

Docket Nos. STN-50-508
50-509

January 31, 1975

Upon petition to intervene in construction permit proceeding, Licensing Board finds showing of individual's present interest and actual injury insufficient to fulfill standing requirements of 10 CFR Section 2.714 and Supreme Court decisions.

Petition to intervene denied.

RULES OF PRACTICE: STANDING TO INTERVENE

Standing to intervene requires a showing that (1) the entry of an order in the particular proceeding would cause actual injury to the person or group requesting intervention, and (2) such injury is arguably within the scope of interests to be protected by the statutes governing the particular proceeding. *Association of Data Processing Service Organization* v. *Camp*, 397 US 150 (1970); *Barlow* v. *Collins*, 397 US 159 (1970); *Sierra Club* v. *Morton*, 405 US 727 (1972).

RULES OF PRACTICE: STANDING TO INTERVENE

Standing to intervene in a proceeding governed by NEPA requires an allegation that the environmental effect of the proposed action will cause petitioner direct or indirect economic or other injury.

RULES OF PRACTICE: STANDING TO INTERVENE

To establish standing to intervene in construction permit proceeding, an individual must show direct personal interest in the outcome of such proceeding.

RULES OF PRACTICE: STANDING TO INTERVENE

A general interest in the possibility of generating power from geothermal sources is insufficient to support standing to intervene in construction permit proceeding. *Sierra Club* v. *Morton,* 405 US 727 (1972).

RULES OF PRACTICE: STANDING TO INTERVENE

While potential competitive injury stemming from an agency's action may serve as a basis for standing to intervene, an attempt to gain standing on that basis will be looked upon with skepticism when the agency's action is of a type that increases competition.

RULES OF PRACTICE: PUBLIC PARTICIPATION

A petitioner who cannot establish the requisite standing for intervention may participate in construction permit proceeding by testifying as a witness or, alternatively, by limited appearance (see 10 CFR Section 2.715).

NEPA: SCOPE OF INTERESTS PROTECTED

The purpose of NEPA is to protect the human environment; its scope encompasses protection of economic interests directly dependent upon specific aspects of the environment. Competitive economic interests are protected by the Atomic Energy Act, which lays down specific procedures in §105, which procedures are not involved in hearings reviewing health and safety and environmental aspects of construction permit applications.

NEPA: SCOPE OF INFORMATION REQUIRED FOR LICENSING

The Licensing Board's responsibility under NEPA requires it to make an independent assessment of possible alternative sources of energy in the area, including geothermal.

MEMORANDUM AND ORDER

The Board has before it for consideration a Petition to Intervene, dated September 9, 1974, by Donald F. X. Finn, requesting leave to intervene in the above-captioned proceeding, pursuant to 10 CFR §2.714, together with

responsive pleadings filed by the Applicant and the AEC Regulatory Staff in the case.[1]

On August 23, 1974, the Atomic Energy Commission* published in the *Federal Register* a Notice of Hearing on Applications for Construction Permits in this proceeding (39 *F.R.* 30535). The Notice provided that a person whose interest might be affected by the proceeding could file with the Commission a petition for leave to intervene within thirty (30) days after the date of publication of notice in the *Federal Register.* The Notice also summarized the provisions of 10 CFR §2.714, the Commission's rule which sets forth the required form and content of petitions for leave to intervene.[2]

On September 9, 1974, pursuant to the foregoing *Federal Register* notice, Donald F. X. Finn (petitioner) a resident of San Francisco, California filed a timely petition to intervene and a request for a public hearing in the proceeding.

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[1] The Board also has before it the following pleadings filed in connection with the pending Petition to Intervene: Applicant's Answer to Petition to Intervene, dated September 19, 1974; AEC Regulatory Staff's Answer to Petition to Intervene dated September 23, 1974; Affidavit of Donald F. X. Finn, dated December 19, 1974 (in response to the Board's Memorandum and Order of December 3, 1974 and Supplemental Memorandum and Order of December 16, 1974); Applicant's Reply to Petitioner's December 19, 1974 Submission; Request for Leave to File Supplemental Reply; and Request for Early Ruling on Petitioner's Request for Proprietary Treatment, dated December 27, 1974; AEC Regulatory Staff's Comments on Affidavit of Donald F. X. Finn filed Pursuant to the Licensing Board's Order of December 3, 1974 and Supplemental Order of December 16, 1974, dated December 27, 1974; "Affirmation" of Donald F. X. Finn, dated January 1, 1975, modifying earlier affidavit of December 19, 1974; Applicant's Supplemental Reply to Petitioner's Submission Dated December 19, 1974; Motion For Prompt Ruling on Petition for Leave to Intervene; and Motion for Prompt Ruling on Petitioner's Request for Proprietary Treatment, dated January 10, 1975.

*Pursuant to the Energy Reorganization Act of 1974, (Pub. L. 93-438, Oct. 11, 1974) the Nuclear Regulatory Commission succeeded to the licensing and regulatory responsibilities of the Atomic Energy Commission.

[2] In this connection, the Notice stated:

> Any person whose interest may be affected by the proceeding, who wishes to participate as a party in the proceeding must file a written petition under oath or affirmation for leave to intervene in accordance with the provisions of 10 CFR §2.714. A petition for leave to intervene shall set forth the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, and any other contentions of the petitioner including the facts and reasons why he should be permitted to intervene, with particular reference to the following factors: (1) the nature of the petitioner's right under the Act to be made a party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. Any such petition shall be accompanied by a supporting affidavit identifying the specific aspect or aspects of the subject matter of the proceeding as to which the petitioner wishes to intervene and setting forth with particularity both the facts pertaining to his interest and the basis for his contentions with regard to each aspect on which he desires to intervene.

Petitioner asserts a twofold interest in the proceeding, i.e., "his business interests in the geothermal energy industry" and his ". . . concern as an ordinary citizen over the safety and environmental issues regarding the transportation, reprocessing and disposal of radioactive wastes. . ." from the proposed nuclear power plant. In support of the first of these two grounds of interest, petitioner states that he has been engaged in the geothermal energy business since 1969 and has served as the managing director of the Geothermal Energy Institute, a consulting and advisory group; that he is an officer and director of California Energy Company, Inc. which is the general partner of Energy Partners 1974, a California limited partnership which, he asserts, has applied for federal geothermal leases in the States of Washington, Oregon and Idaho. Petitioner also states that Energy Partners 1974 has entered into a joint venture with Pacific Energy Corporation, the "operating arm" of Hughes Aircraft Company for geothermal exploration and development, to develop geothermal properties in the Pacific Northwest. The petition makes general reference to certain activities of the aforementioned organizations in seeking leases for exploration and development of geothermal lands in the area, to which more detailed reference will be made later in this Memorandum.

Petitioner states that his interest "may be affected by this proceeding in several ways," in that he would seek, both individually and as an officer of California Energy Company, to provide the geothermal energy to power the theoretical geothermal capacity which he states the Applicant (WPPSS) has indicated could be available to it by 1981 and 1983; and that, accordingly, the proposed nuclear capacity sought to be licensed in this proceeding could be reduced. Further, petitioner claims that "[his] business interests may be affected within the meaning of 42 U.S.C.A. §2239 (a) by the way in which this proceeding handles and comes to grips with the issues of geothermal alternatives in the Pacific Northwest and radioactive waste disposal and containment." He also claims that the proceeding ". . . affects Petitioner's interests in terms of public and personal health and safety protection as well as in terms of the general national and public interest in the regulation of that facility under the Atomic Energy Act 42 U.S.C.A. §§2011, 2012, and 2013."

Specifically, petitioner contends that the Applicant's Environmental Report ". . . does not contain a sufficiently complete discussion of geothermal alternatives to the proposed nuclear power plant, as required by §102(2)(D) of NEPA, nor does it compare the nuclear and geothermal fuel cycles from an environmental impact standpoint or include a sufficient cost-benefit analysis which considers and balances the environmental effects of the proposed nuclear facilities and geothermal alternatives." Petitioner contends that geothermal energy offers a viable alternative to the proposed nuclear facility. In conclusion, petitioner's claim of interest is that if a permit was issued for this project as presently proposed, it would adversely affect petitioner's interest in the busine

of exploring and developing geothermal resources in the Pacific Northwest and in acquiring leasehold interests for such development.

The Applicant, in its above-described Answer to the Petition to Intervene, contends that petitioner has failed to set forth a justifiable interest and that he has failed to satisfy the requirements of §2.714 in that he has not specified facts to demonstrate that he has a valid interest which may be affected by the outcome of the proceeding and which would support a right to intervene. Applicant argues that petitioner's economic interest allegations with regard to his business ventures are speculative in that petitioner cites no actual leases, federal or private, or consulting contracts which could be affected by the proposed facilities; that his vague references to the "apparent" success of the organization with which he is affiliated in obtaining Federal geothermal leases is "totally lacking in specificity;" that his lack of a present interest is indicated by his "equivocal references" to what he "intends" to do in the future; and that nothing in the petition indicates that petitioner's personal financial interest is anything more than speculative, pointing out that his "future aspirations" in this area "are entirely too vague to provide the requisite basis for standing to intervene." Applicant cites, in this connection, the Supreme Court decision in *Sierra Club v. Morton,* 405 US 727 (1972) claiming that the Court there held that an intent to acquire possible interest in the future does not constitute the necessary legal interest warranting intervention.

Applicant, for its second argument, contends that the petitioner fails to set forth with particularity specific contentions and supporting facts, indicating that petitioner's second purported interest, viz., his "concern as an ordinary citizen" regarding the transportation, reprocessing and disposal of radioactive wastes attempts, in effect, to raise the uranium fuel cycle as an issue. In this regard, Applicant claims the Commission's rulemaking proceeding amending Appendix D to 10 CFR Part 50 (10 CFR Part 50, Appendix D, §A.15; 39 *F.R.* 14188, 14191, April 22, 1974) precludes inquiry into the environmental effects of the fuel cycle in individual licensing proceedings in the manner proposed (citing *Potomac Electric Power Company,* Douglas Point Nuclear Generating Station, Units 1 and 2, ALAB 218, RAI 74-7, 79, 89, July 15, 1974). Further, Applicant argues that petitioner concededly seeks to challenge the Commission's Regulations in this regard, and, as such, it must be denied as not complying with 10 CFR §2.758, and, for lack of support, as not constituting a valid contention under 10 CFR §2.714.

Applicant also contends that the petitioner's proposed contention relative to the availability of geothermal energy as a viable alternative to the nuclear facilities lacks supporting basis, because it has failed to present a sufficient articulation of the bases for his assertion as to the commercial feasibility of geothermal power as an economic alternative to nuclear power within the time frame when the power from the proposed facilities is needed; that, here again, the petition, in raising this question, employs language indicating the speculative

nature thereof, and fails to specify with particularity that geothermal energy is a viable alternative in terms of the state-of-the-art technology relative to production of electric power utilizing geothermal energy. Applicant also criticizes petitioner's attempt to assert as a contention his "anticipation" that the Staff will fail to make an adequate assessment of geothermal alternatives in the "yet-to-be-issued" Draft Environmental Statement.

The Staff's Answer to the Petition to Intervene agrees with the Applicant's position that the second of the two grounds asserted by the petitioner, i.e., as a concerned citizen, does not support a basis for intervention in view of the petitioner's distant residence from the site, being some 600 miles from the plant site in Washington. However, the Staff differs with the Applicant's position regarding petitioner's assertion as to its interest in the proceeding as a potential supplier of geothermal power, contending that petitioner "appears to have standing because the petition indicates that his competitive position is diminished to the extent that he is unable to sell his product commercially as a result of the proposed substitution of nuclear energy for geothermal energy." The Staff distinguishes the *Grand Gulf* proceeding,[3] upon which Applicant relies, and in which the same petitioner was denied intervention due to an inadequate showing of interest. The Staff contends that whereas in *Grand Gulf*, petitioner merely alleged that he intended to acquire geothermal leases in Mississippi, in the instant petition he states ". . . that an organization in which he has a partnership interest has applied for Federal geothermal leases in the State of Washington and has apparently obtained several leases within the State. Thus, his commercial interest is real rather than a potential one."

The Staff also refers to the fact that, in this connection, petitioner was permitted to intervene in the operating license in the *Trojan* case involving a nuclear plant located in the State of Oregon, on the issue of evaluation of geothermal energy as an alternative to the nuclear facility. *In the Matter of Portland General Electric Company* (Trojan Nuclear Plant) Order of the Board, May 18, 1973. Further, the Staff states that, in passing upon the petition for intervention with regard to the requirement that petitioner state at least one relevant contention with reasonable specificity and some basis assigned for it, in accordance with §2.714, the issue raised by petitioner regarding the adequacy of the evaluation of geothermal energy as an alternative is a contention which satisfies the requirements of the rule. The Staff, however, urges the rejection of those portions of the petition which refer to the environmental effects of the uranium fuel cycle. The Staff, therefore, supports the admission of the petitioner as a party to the proceeding.

Pursuant to the Board's Notice and Order of October 25, 1974, a Special Prehearing Conference was scheduled for November 19, 1974 at Olympia,

[3] *In the Matter of Mississippi Power and Light Company*, Grand Gulf Nuclear Station, Units 1 and 2, Docket No. 50-416, 417, Board Order of July 9, 1973.

Washington. The Notice stated that the Conference would deal, among other matters, with the pending petition for intervention filed by Donald F. X. Finn and that the Board would entertain oral argument on said petition. The petitioner and counsel for the Applicant and the Regulatory Staff were directed by the Notice to address themselves to the matters regarding the basis for the intervention, including the matters set forth in §2.714 of the Commission's Regulations. Copies of the Notice were served on the petitioner and all persons and organizations who indicated an interest in the proceeding.

The Special Prehearing Conference was convened as scheduled on November 19 and appearances were entered by counsel for the Applicant, counsel for the Regulatory Staff and a representative of the State of Washington. However, the petitioner, Mr. Finn, did not appear at the conference, the Board being informed on the record by the Staff that Mr. Finn indicated he would submit his request for intervention on his pending petition as filed.

It developed during the course of the conference that the Board had certain questions of fact it wished to put to Mr. Finn pertaining to the nature of his interest in the proceeding, in terms of the provisions of §2.714, which might be determinative of his standing as a potential party to the proceeding. Due to Mr. Finn's absence, it was not possible to resolve these questions during the conference,[4] and, in an effort to assist the Board in a resolution of a pending petition for intervention, it was determined, with the agreement of counsel for the Applicant and the Staff, that Mr. Finn would be given a further opportunity to submit the necessary factual data in written form for the Board's consideration, with an opportunity for the Applicant and the Staff to comment thereon. Accordingly, by Order dated December 3, 1974, the petitioner was directed to respond, in affidavit form, to specific questions set forth in said Order regarding the facts as to whether petitioner held leases or permits for geothermal exploration and development and whether he had filed applications for leases or permits for geothermal exploration and development either with the State of Washington, the Federal Government or with private parties. In each instance, specific details were requested from the petitioner.[5]

By affidavit dated December 19, 1974, Mr. Finn submitted a response to the Board's December 3 Order. Mr. Finn states, in substance, that he "has and continues to seek leases and permits for geothermal exploration and development in the State of Washington from the State of Washington and [a private

[4] The Board did not choose to invoke the default provisions of 10 CFR §2.707 in view of its desire to give petitioner a further opportunity to provide facts in support of his petition. The Board was not, at that time, aware of the fact that petitioner is himself an attorney (see *Portland General Electric Company* (Trojan Nuclear Plant) Docket 50-344-0, Transcript of Prehearing Conference July 19, 1973, at Tr. 11).

[5] The aforesaid Order was modified in certain respects by a Supplemental Memorandum and Order dated December 16, 1974.

company];"[6] that he "has sought to apply for permits and leases. . ." on State Lands in the State of Washington and has applied therefor to the Department of Natural Resources of the State of Washington but has been informed that "applications cannot be accepted until final rules and regulations for geothermal leasing have been adopted;" that he is an officer and director of California Energy Company, Inc. which is "the apparent successful applicant for Federal geothermal leases in Skamania County, Washington, at the Mount St. Helens geothermal area." Petitioner then states that such applications were filed in January 1974 and are on file with the U. S. Bureau of Land Management in Portland, Oregon, giving the file numbers thereof, and stating that "some of them have been withdrawn and some rejected but some are in petitioner's opinion successful." Petitioner then also refers to the joint venture with the Hughes Aircraft Company subsidiary and states that "it is also an apparently successful applicant for Federal lands in the area. Under the terms of the joint venture, California Energy Company will have an interest in those lands." Further reference by the petitioner to the nature of his interest is that he is "actively studying the area and collecting geotechnical data as well as taking steps to acquire certain rights which are available in the area; and the [another named individual] has also applied for Federal geothermal leases in the area and petitioner has offered to acquire these leases when issued. . . ." Petitioner states that the expected time frame for consideration and grant of applications and acceptances of firm offers referred to above is "the next six to ten months."

In connection with the submission of this affidavit, petitioner requests that "this affidavit be sealed and deemed privileged competitive information."[7]

Pursuant to the Board's Order, Applicant submitted a response, dated December 27, 1974, to the petitioner's December 19 submission and requested leave to file a supplemental reply and for an early ruling on petitioner's request

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[6] See footnote 7, *infra*, for explanation re bracketed phrase. Further, as is pointed out in the Applicant's Reply, referred to below, the quoted statement ". . . is susceptible of at least two different interpretations, to wit: either (A) He 'has' some leases (already) 'and continues to seek' (more leases), or (B) He 'has' (sought) some leases 'and continues to seek' (those leases—and perhaps others). As appears from the remainder of petitioner's response, the latter interpretation seems to be the correct one, i.e., the petitioner is representing not that he has leases already, but that he has sought and continues to seek leases." The Board agrees that the statement is to be so construed.

[7] In light of the petitioner's request that his affidavit be given proprietary treatment, the Board will not quote, in this public document, those portions of the affidavit which the petitioner apparently regards as "privileged competitive information," although he does not indicate which portions are to be so protected. Nevertheless, the Board has considered and evaluated the contents of the affidavit and the responses of the Applicant and Staff in arriving at its conclusion on the merits of the petition to intervene. However, the Board notes, as pointed out, *infra*, by the Applicant, that most of what is contained in the affidavit has already been referred to in the petition to intervene, a public document. The specific request for proprietary treatment is dealt with in a separate Board order herein.

for proprietary treatment. In connection with the principal matter of the information provided by petitioner in response to the Board's request, Applicant contends that the affidavit "only serves to confirm, as Applicant had previously argued, that petitioner's interests are speculative;" and that they ". . . in no way [establish] the kind of present interest and direct stake in the outcome . . . ," necessary for standing, as distinguished from an intention to acquire such an interest or from a mere "interest in the problem," citing *Association of Data Processing Service Organizations v. Camp,* 397 U.S. 150; *Barlow v. Collins,* 397 U.S. 157; *Sierra Club v. Morton,* 405 U.S. 727. The Applicant's response makes a detailed analysis of the petitioner's supplemental statement and contends that, in substance, in answer to the first of the Board's questions as to whether petitioner now holds leases or permits for exploration and development, the answer is "No"; and that each of his responses are to the second series of questions regarding applications or offers. In its response, the Applicant attaches an official communication from the Forest Service of the U. S. Department of Agriculture, which has the responsibility for preparing NEPA statements on the granting of Federal leases in the areas indicated as of interest to the petitioner. The Forest Service states that it does not have sufficient personnel to prepare environmental impact statements and that it is "extremely doubtful" that it will be in a position to make recommendations regarding the issuance of leases prior to the end of the current fiscal year. Applicant emphasizes that the Forest Service states that it has no plans to conduct environmental reviews for leases in the Mount St. Helens area of Washington, which is the principal area of interest to petitioner.

Applicant's opposition attempts to make a point-by-point refutation and response to the statements in petitioner's supplemental affidavit indicating what it contends are the vague references, inconsistencies and questions raised by such statements, and that the petitioner has failed to respond adequately to the request in the Board's Order for factual information.[8] Applicant asserts, in summation, that a fundamental point emerges from petitioner's December 19 affidavit, which is that petitioner himself has no present geothermal holdings, has not made any firm offer to Burlington Northern, nor does he have, as an individual, any applications pending with the State of Washington or the Federal Government. Further, Applicant argues that since petitioner's standing depends on his personal interest, his having sought to intervene as an individual, a showing of such interest has not been made, since his claim appears to be made through California Energy and through that organization's alleged joint venture with Pacific Energy and through the named individual. Finally, in connection

[8] In the interests of brevity, the Board has reference in this connection, to the detailed presentation of the questions raised by petitioner's affidavit, as set forth in the Applicant's Reply of December 27 at pages 5-11, thereof.

with the request for proprietary treatment, Applicant contends that petitioner has not made a showing of potential injury to competitive interests so as to justify the protection of his affidavit as privileged confidential information, nor has he complied with the procedural steps required by the Commission's Regulations for withholding such documents from public disclosure.

The Regulatory Staff filed its comments on Mr. Finn's affidavit on December 27 in which it indicated that this supplemental information "reinforces" the Staff's earlier view that "petitioner has sufficient commercial interests in the State of Washington to afford him standing to intervene," in that he has "taken affirmative steps to obtain leases and permits from the State of Washington, [the named private company], and the Federal Government." However, the Staff indicated that petitioner had not fully complied with the Board's Order in that he did not indicate whether he was the sole applicant or offerer for these leases and did not explain the factual bases for his conclusions that these lease applications were "apparently successful." With regard to petitioner's request for protection from public disclosure, the Staff urged that the request not be granted until petitioner furnishes the information required in 10 CFR §2.790(b). The Staff, as well as the Applicant, addressed letters to the Office of the Secretary of the Commission, transmitting their pleadings, and requesting that Mr. Finn's affidavit and their pleadings be withheld from the public document room until the Board has ruled on Mr. Finn's request.

Under date of January 1, 1975, petitioner submitted a further document consisting of "an affirmation" that modified his affidavit of December. In this document, in response to the Staff's comments, petitioner stated that he had been negotiating with the named private company for leases as a sole offerer with the intention of assigning the leases; that the Applicant for the Federal leases at Mount St. Helens is Energy Partners 1974; and that ". . . in respect of those lease [sic] for which no other applications have been filed, it is apparent from my own personal investigation and from my discussions with the U. S. Bureau of Land Management that Energy Partners 1974 will be issued such leases. . . ." Petitioner also stated that all applications for Federal geothermal leases are a matter of public record and that he, petitioner, has "an individual economic interest in the business of California Energy Company, Inc. and in the success of the exploration program being conducted for Energy Partners 1974 for which I am principally responsible." With regard to the request for protection of the information in his December 19 affidavit, petitioner claims that "hardship would result as a result of the disclosure of the areas of interest being revealed herein" in that ". . . the applicant and its associates are potential competitors for geothermal leases . . . ," and that ". . . there is the possibility that my business and contractual relationships may be interferred [sic] with unless a protective order issues."

On January 14, 1975, Applicant submitted a supplemental reply to the petitioner's further submission. In this pleading, Applicant again attempted to

refute, point-by-point, the statements made by petitioner in his January 1 document and asserted, in summation, that the information provided by petitioner in the two documents filed indicates that petitioner's interest is only indirect and potential, and "... is not the present interest contemplated under 10 CFR §2.714 or that interest and direct stake in the outcome necessary to give standing." Applicant states that petitioner apparently concedes that he holds no permits or leases for geothermal exploration and development. With respect to the statement regarding the negotiations and efforts by petitioner for geothermal exploration in the State of Washington, the Applicant attaches to its pleading a copy of a letter dated January 6, 1975 from the Washington Department of Natural Resources which, pursuant to legislation passed by the Washington State Legislature (the Geothermal Resources Act), requires that there be applications for drilling permits prior to any geothermal drilling activity on any State or private lands in the State of Washington. The Department's letter attached to the document states that "At this time there are no applications for drilling permits on State or private lands anywhere in the State of Washington."

Upon this basis, Applicant submits that petitioner has failed to make the necessary showing required by the rules that he has an interest "which may be affected by the proceeding", nor, is it claimed, has he shown in any meaningful way how the outcome of this case would affect his interest, assuming that such interest has been sufficiently demonstrated. Reference is also made by the Applicant again to the earlier letter from Forest Service of the U. S. Department of Agriculture, referring to the fact that there are no plans "... for working on the Mt. St. Helens known geothermal area nor the lease application area surrounding the KGRA." The Applicant states that contrary to petitioner's opinion, it is clear that leases are not likely to be issued in the Mount St. Helens area "in early 1975," as petitioner has contended.

With respect to petitioner's request for proprietary treatment, Applicant contends that this request should be denied unless petitioner complies with the requirements of §2.790(b)(2), which sets forth specific statements which must be submitted by an Applicant requesting such protection. Applicant states that petitioner has not addressed himself to the considerations set forth in the rules, and that the request should be denied unless petitioner can demonstrate that the material in question contains anything in substance which is not contained in the Petition for leave to Intervene or which is not otherwise public, or that public disclosure could work a significant hardship to a substantial interest of the petitioner.

In considering the question of the sufficiency of the Petition to Intervene, the Board is faced with the threshold question of whether the Petitioner has demonstrated the existence of an interest which may be affected by this proceeding, in terms of the provisions of §2.714, so as to justify according him the standing of a party to the proceeding.

At the outset, it is to be recognized that we are not here dealing with the usual petition for intervention by citizens or public groups who are resident in the area of the proposed nuclear power plant and who are seeking to raise environmental and/or safety and health issues.[9] Rather, Mr. Finn, the petitioner, seeks to intervene in the case claiming an economic competitive interest in the proceeding by virtue of his asserted business and commercial activities in the exploration and development of geothermal energy resources and his association with various companies allegedly engaged in the promotion of geothermal energy.

In these circumstances, it becomes essential that petitioner demonstrate that "the entry of an order in this proceeding" (i.e., the grant of a permit to construct the proposed plant) would cause him actual economic injury, or "injury in fact" as the cases hold. He must also show that that economic injury is arguably within the scope of interests to be protected by the statutes under which this hearing is held. This is the two-part test of standing laid down by the Supreme Court by which this Board must judge petitioner's claimed interest. *Association of Data Processing Service Organizations, Inc. v. Camp,* 397 U.S. 150, 25 L.Ed.2d 184, 90 Sup. Ct. 827 (1970); *Barlow v. Collins,* 397 U.S. 159, 25 L.Ed.2d 192, 90 Sup. Ct. 832 (1970); and *Sierra Club v. Morton,* 405 U.S. 727, 31 L.Ed.2d 636, 92 Sup. Ct. 1361 (1972). Only by such a factual showing of the existence of a present and direct economic stake in the outcome of the matter before the Commission can petitioner be granted standing as a party.

Although the Petitions Board in the *Trojan* case admitted petitioner as a party in that proceeding, it noted "serious reservations as to the sufficiency of petitioner's legal interest."[10] This Board has examined the above-described additional data submitted by petitioner, upon the Board's request, to spell out more fully the nature of any injury which might be incurred by a grant of the CP (which information was not available to the Trojan Board). It is of the opinion that, based upon the showing made, the conclusion is inescapable that any injury

[9] With regard to petitioner's assertion of the second of his two grounds for intervention, i.e., "as a concerned citizen" referred to above, it is clear that his allegations are wholly insufficient to support standing to intervene. Petitioner is extremely remote in residence, being some 600 miles from the site and, therefore, can hardly claim to be potentially affected by the construction or operation of the plant; *Matter of Duquesne Light Company, et al.* (Beaver Valley Power Station, Unit No. 1) ALAB-73-4, 243; *Matter of Northern States Power Company* (Prairie Island Nuclear Generating Plant, Units 2 & 3) ALAB-107, RAI-73-3, 188. Further, his claimed "concern" as to the transportation of radioactive wastes constitutes an improper challenge to the Commission's Regulations, as indicated in the opposition pleadings filed by the Applicant and the Staff, summarized above. Thus, it must be concluded that petitioner's showing is inadequate to support a standing on these grounds.

[10] *Portland General Electric Company* (Trojan Nuclear Plant), Docket No. 50-344, Unpublished Order of Atomic Safety and Licensing Board, dated May 18, 1973.

which Mr. Finn may incur will be due solely to the creation of competition to his hoped for geothermal generating capacity. Mr. Finn has not shown how the environmental and health and safety issues to be decided by this Board, under the Notice of Hearing, can be deemed to have any bearing on such an injury. Nor has there been any showing by Mr. Finn that, assuming the proposed plant is constructed and operated, any activity by him in the exploration and development of geothermal energy in the southern regions of the State of Washington would in any way be impaired, even if he should someday be successful in acquiring leases and developing a commercial enterprise for the production and sale of electricity produced by geothermal energy, which, at this point in time and from the information filed by Mr. Finn, appears to be wholly conjectural and speculative.

In order to have standing, therefore, petitioner must establish that he will be injured in fact by the proposed action. *United States v. SCRAP,* 412 U.S. 669, 37 L.Ed.2d 254, 93 Sup. Ct. 2405 (1973); *Sierra Club v. Morton, supra; Barlow v. Collins, supra; Data Processing Service v. Camp, supra; Natural Resources Defense Council v. EPA,* ____ F.2d ____, 7 ERC 1181 (9th Cir. 1974); *Conservation Council of North Carolina v. Costanzo,* 505 F.2d 498 (4th Cir. 1974). The most that the petitioner here alleges is that he *may* be injured. Viewed realistically, petitioner's claims exhibit a general interest in the possibility of generating power from geothermal sources not unlike the general interest of the Sierra Club in the Mineral King Valley (*Sierra Club v. Morton, supra*), or NRDC in clean air in Arizona (*NRDC v. EPA, supra*) or the Conservation Council in recreational uses of Bald Head Island (*Conservation Council v. Costanzo, supra*). That sort of general interest is insufficient to support standing. In *Sierra Club,* the court stated that "... the 'injury in fact' test requires more than an injury to a cognizable interest. It requires that the party seeking review be himself among the injured" (405 U.S. at 734, 31 L.Ed.2d at 643). The injury in fact must directly harm petitioner.

In *U. S. v. SCRAP, supra,* the court was presented with an "... attenuated line of causation to the eventual injury ..." (412 U.S. at 688, 37 L.Ed.2d at 270). The court dealt with this alleged injury as follows:

> Of course, pleadings must be something more than an ingenious academic exercise in the conceivable. A plaintiff must allege that he has been or will in fact be perceptibly harmed by the challenged agency action, not that he can imagine circumstances in which he could be affected by the agency's action (412 U.S. at 688, 37 L.Ed.2d at 270).

In *SCRAP,* it was alleged that as a result of the railroads' freight rate structure, the plaintiffs were, in fact, injured. Here, the petitioner alleges only the possibility of economic injury, which depends, in turn, upon the happening of some future event which may or may not ultimately occur, i.e., the granting to petitioner of a lease to utilize geothermal sources of energy. Such allegations are insufficient to support standing. Further, Applicant's responses to peti-

tioner's various submissions in this matter may fairly be characterized as showing that any injury in fact alleged by petitioner is without foundation.

The Staff has drawn the Board's attention to *Marine Space Enclosures, Inc. v. Federal Maritime Commission,* 420 F.2d 577 (D.C. Cir. 1969) (See Transcript of Prehearing Conference, November 19, 1974, at Tr. 20), which the Staff asserts stands for the proposition that an interest such as petitioner's is sufficient to accord standing to intervene. The Board agrees with the Staff that the kind of potential economic injury presented by *Marine Space* is similar to that alleged by petitioner. *Marine Space* had a potential economic interest which the court noted had been characterized by an adverse party as "merely the dream of a real estate promoter, a dream supported only by the presentation of what is called a 'rendering' " (420 F.2d at 592). The court, in holding that *Marine Space* had standing to participate in an FMC proceeding, noted that it had at least taken a step forward in formulating its project and making a presentation. The court felt this sufficient to provide a basis to allow *Marine Space* to participate.

The crucial difference, however, between the situation in *Marine Space* and the instant proceeding is found in the action taken by the agency. In *Marine Space,* the FMC had taken a decision which would have prevented business activity of the sort *Marine Space* sought to enter for a period of seventy years. Here the proposed agency action might, viewing the worst possible case, deprive petitioner of a portion of a potential market which he might at some future time be in a position to serve. *Marine Space* clearly stands for the proposition that competition, even potential competition, must be considered when an agency acts under a public interest mandate. However, the court clearly recognized that "[T]he standing of a potential enterprise to object to agency action may be subject to skeptical inquiry when the action is of a type that increases competition" (underscoring supplied) (420 F.2d at 590). Clearly, the proposed action in the instant case, i.e., the grant of a permit which will authorize the production of electrical energy by nuclear power, is "of a type that increases competition" with other forms of energy, and that increased competition is what essentially constitutes petitioner's grievance.

Fugazy Travel Bureau, Inc. v. C.A.B., 350 F.2d 733 (D.C. Cir. 1965), presents a situation more analogous to the instant case. There a travel agency complained of a CAB order which increased the frequency with which it would be required to remit ticket sales collections to the airlines concerned. This exposed it to a type of competition with other travel agencies it had not previously experienced. The court held that it had no standing to complain of the CAB's alleged illegal act subjecting it to such competition. A similar result was reached in *Texas State AFL-CIO v. Kennedy,* 330 F.2d 217 (D.C. Cir. 1964), involving a challenge to the admission of aliens to perform work in the State of Texas, an action which the plaintiff alleged deprived its members of jobs.

Moreover, assuming that petitioner has alleged an injury sufficient to support standing, his petition must be denied for yet another reason. As pointed out above in *Barlow* and *Data Processing*, the injury alleged must arguably fall within the zone of interests protected by the statute which petitioner alleges is violated. Petitioner here specifically alleges a violation of the National Environmental Policy Act of 1969 (42 U.S.C. §§4321 *et seq.*), in that the alternative of geothermal energy will be inadequately explored. It is this violation of law which petitioner alleges will cause him potential injury.

There are few reported cases which have dealt with the kind of economic injury which is within the scope of interests protected by NEPA. In *Environmental Defense Fund v. Corps of Engineers*, 325 F. Supp. 732 (E.D. Ark. 1970), the District Court had no difficulty in finding that an individual plaintiff had standing to complain of an alleged failure of defendants to follow the dictates of NEPA based on his economic interest. The defendants' proposed action was the construction of a dam which would prevent periodic flooding of this plaintiff's land, which flooding plaintiff alleged was economically beneficial.

Further, certain economic interests have been recognized in Commission licensing proceedings. In the *Matter of Tennessee Valley Authority*, (Browns Ferry Nuclear Plant, Units 1, 2 and 3) CLI-73-3, RAI-73-1, 3, the Atomic Energy Commission granted a petition to intervene in which petitioner's only contention was that the economic cost to Applicant's customers reflected in necessarily increased rates required by the construction of cooling towers outweighed the environmental benefit of those towers. Similar economic interests have been recognized in the context of the Commission's NEPA obligations in several other proceedings.[11]

However, each of these instances in which economic interests have been recognized can be characterized as follows. In each instance, there is an alleged failure to comply with NEPA, an alleged specific effect of the proposed action on some specific aspect of the environment, which specific environmental effect directly causes economic injury. Such specificity is wholly lacking in the instant situation. As pointed out above, plaintiff has no standing by virtue of any use and enjoyment of the environs of the proposed plant to complain of any failure to follow the mandates of NEPA. Rather, he complains that the failure to follow the mandates of NEPA will result in competition to his proposed future business ventures.

The purpose of NEPA is to protect the human environment. This clearly includes the protection of economic interests directly dependent upon specific aspects of the environment, such as the interest of a commercial fisherman in

[11] See e.g., *Matter of Consolidated Edison Company of New York, Inc.* (Indian Point Station, Unit No. 2) LBP-73-33, RAI-73-9, 751; modified and aff'd., ALAB 188, RAI-74-4, 323; *Matter of Pacific Gas and Electric Company* (Diablo Canyon Nuclear Power Plant, Units 1 and 2) ALAB-223, RAI-74-8, 241.

continued stocks of fish. If the fisherman can show that the proposed action, if taken, will destroy these stocks of fish, he is entitled to have that environmental cost weighed against the economic benefits of the proposed action. His standing derives from his direct economic interest in these stocks of fish, entitles him to become a party to the proceeding, and to suggest and comment on alternatives which may protect the fish and his economic interest therein (See *Indian Point* and *Diablo Canyon, supra*).

Petitioner seeks to show that the proposed action will be taken without giving the consideration mandated by NEPA to an alternative to the plant, i.e., geothermal power. He alleges no environmental effect of the proposed action which, if taken, will cause him direct or indirect economic injury. Rather, he seeks to prevent competition for a market which he hopes someday to acquire the means to satisfy. Clearly, this is not an injury arguably within the scope of interests protected by NEPA.

Petitioner points out that the Commission has, under the Atomic Energy Act of 1954, as amended, certain public interest responsibilities. These responsibilities include a consideration of the competitive aspects of the licensing of nuclear generating units. Congress has provided a specific procedure for these considerations in §105 of the Act. However, the effects on competition of the granting of WPPSS's application are not in issue in this proceeding, which is being conducted under §189 of the Act, whose objectives are manifestly different from §105 (cf. *Cities of Statesville, et al. v. AEC*, 441 F.2d 962 (D.C. Cir. 1969).

Further, it is clear that we are not here dealing with a situation of "mutual exclusivity" (cf. *Ashbacker Radio Corp. v. FCC*, 326 U.S. 327, 90 L.Ed. 108, 66 Sup. Ct. 148 (1946)) where the action taken by an agency in granting a permit would, in and of itself, result in the exclusion of the petitioner from the pursuit of his own stated objectives and thus, adversely affect his economic interest or otherwise injure him competitively. Nor are we here dealing with a proposed agency action which would prevent petitioner from pursuing his stated business goal, (cf. *Marine Space, Fugazy, Texas AFL-CIO, supra*). Petitioner, in other words, makes no showing that a grant of a permit for the construction of the proposed nuclear power plant in Grays Harbor County, Washington would preclude, prevent, or diminish his stated interest in the exploration and development of geothermal energy sources in the southern portion of the State of Washington. Thus, petitioner fails to demonstrate that he has a legally protected interest sufficient to justify his intervention as a full party in these proceedings, as defined in the Commission's Regulations.

It is significant to note, in any event, that nowhere in the Petition to Intervene nor in the supplementary affidavits does it appear that Mr. Finn has, in his individual capacity (in which the petition was filed and is to be considered), a direct economic interest in the proceeding, since the alleged applications for

leases and permits (even if filed)[12] had been submitted by various companies and not by Mr. Finn individually. Therefore, the situation makes such potential competitive interests, even if recognized, at least removed from Mr. Finn's personal and individual interest. (See *Erlich v. Glasner,* 418 F.2d 226, (9th Cir. 1969) holding that the sole stockholder of a corporation could not individually bring an action to recover damages incurred by the corporation.)

Moreover, the references in Mr. Finn's petition and the supplementary affidavits are pegged to the activities of these companies who are not parties to the petition and whose interests, such as they may be, are not before the Board for consideration. Nor does it appear that Mr. Finn is appearing, or has the authority to appear in a representative capacity on behalf of these companies (cf. *NRDC v. EPA, supra;* and *Duke Power Company* (Catawba Nuclear Station, Units 1 and 2) RAI-73-9, 666 at 678).

Despite the failure of petitioner to demonstrate sufficient interest to acquire the status of a party in the proceeding, the Board's responsibility under NEPA would require it to make an independent assessment of possible alternative sources of energy in the area, including geothermal. See 10 CFR Part 2, Appendix A, Section VI. Thus, the public interest criteria in this respect, inherent in the statute, will be observed.

The principal objective in the hearings conducted under the Atomic Energy Act involve the compilation of a full and complete record so as to enable the Board to arrive at a sound and valid decision resolving the issues noticed for hearing. In this connection, and with this objective, the Commission's regulations and procedures provide ample opportunity for Mr. Finn to participate in an appropriate manner, given the circumstances, to give the Board the benefit of his views and available data as to the alternative sources of energy through the use of geothermal power. Such participation under the Commission's procedures is available by way either of limited appearance (see Notice of Hearing herein) or as a witness, in which he can offer data and raise questions relevant to the issues for the Board's consideration.[13] In any event, the Board, mindful of the petitioner's views, will insure that the possible alternative of

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[12] There appears to be some doubt that such applications have, in fact, been filed in light of the letter quoted above from the State of Washington. Moreover, in view of the uncertain and tenuous status of geothermal exploration in the Southern part of Washington, as illustrated by the above-mentioned letters from the Forest Service of the U. S. Department of Agriculture as well as from the State of Washington, there would not appear to be any reasonable basis for even an assumption as to the legal status of any applications filed by these companies.

[13] Such procedures, wherein a person who cannot qualify as a party and yet seeks to participate in a hearing, are commonly recognized not only in this Commission's own procedures, but in the similar procedures of a number of other regulatory agencies (see e.g., 14 CFR §302.14 (CAB); 47 CFR §1.225 (FCC)).

geothermal energy is given full consideration in arriving at its ultimate conclusions in this proceeding.[14]

In view of the foregoing, the above-described petition of Donald F. X. Finn to intervene as a party in this proceeding IS DENIED, without prejudice to Mr. Finn's appearance as aforesaid. Pursuant to 10 CFR 2.714a, this Memorandum and Order may be appealed to the Atomic Safety and Licensing Appeal Board within five (5) days after service hereof, by filing a notice of appeal and accompanying supporting brief. Any other party hereto may file a brief in support of or in opposition to the appeal within five (5) days after service of the appeal.

Dr. Emmeth A. Luebke and Dr. David R. Schink, Members of the Board, join in this Memorandum and Order.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Max D. Paglin, Esq., Chairman

Dated at Bethesda, Maryland
this 31st day of January 1975.

[14] Cf., in this connection, the recent decision of the U. S. Court of Appeals for the District of Columbia Circuit in *Carolina Environmental Study Group v. United States, et al.*, Case No. 73-1869, January 21, 1975___F.2d____, (D. C. Cir. 1975) wherein the Court states, at page eight (8) of the Slip Opinion, as follows: "The Study Group argues that because the nuclear plant is to operate until the year 2106, alternative power sources which may be developed, such as oil shale, geothermal energy, and solar energy, should have been considered. That contention presupposes future developments which are both speculative and remote. *Natural Resources Defense Council v. Morton, supra,* is dispositive." [*Natural Resources Defense Council v. Morton,* 148 U. S. App. D. C. 5, 458 F.2d 827 (1972).]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

CLI-75-2

COMMISSIONERS:
William A. Anders, Chairman
Marcus A. Rowden
Edward A. Mason
Victor Gilinsky
Richard T. Kennedy

In the Matter of

WISCONSIN ELECTRIC POWER COMPANY,
WISCONSIN POWER AND LIGHT COMPANY,
WISCONSIN PUBLIC SERVICE CORPORATION
and MADISON GAS AND ELECTRIC COMPANY

(Koshkonong Nuclear Plant, Units 1 and 2)

Docket Nos. 50-502
50-503

February 6, 1975

Commission denies petition to vacate its earlier denial of motion for reconsideration of issuance of hearing notice for Koshkonong construction permit proceeding, finding that its early notice of hearing does not deny petitioners an adequate opportunity to prepare specific contentions in support of a request for intervention.

Commission also denies motion for further extension of time in which to file intervention petition, finding insufficient basis for further delaying the hearing, but allows limited enlargement of time to meet pending deadline.

Petition to vacate and motion for extension of time denied.

RULES OF PRACTICE: COMMISSION CONSIDERATION OF PROCEDURAL MATTERS

Procedural pleadings relating to matters properly pending before a Licensing Board will not be entertained in the first instance by the Commission; Licensing

Board's broad authority, including its power to certify questions to the Commission, where appropriate, is ample to enable fair and efficient resolution of issues.

CONSTRUCTION PERMIT HEARINGS: EFFECT ON PRESENT APPLICATION OF INTENTION TO CONSTRUCT FUTURE PLANTS

Commission may hold hearings on construction permit applications for 2 units irrespective of possibility that applicant may later seek to construct other plants at other sites. Each application is procedurally separate, and requires full compliance with Commission rules and regulations.

CONSTRUCTION PERMIT HEARINGS: EFFECT OF DEFERRAL OF DATE OF PLANNED SERVICE ON HEARING SCHEDULE

The timeliness of scheduled hearings for construction permits is not automatically placed in doubt by an applicant's decision to defer planned in-service dates for facilities by 2 years, especially absent a suggestion that the planned starting date for construction will likewise be deferred.

CONSTRUCTION PERMIT HEARINGS: EFFECT OF DEFERRAL OF DATE OF PLANNED SERVICE ON HEARING SCHEDULE

Licensing Board is empowered to make appropriate scheduling adjustments for discovery and hearing where applicant has determined to defer planned in-service dates of proposed facilities.

INTERVENTION: REQUEST FOR ADDITIONAL TIME

A party may not, by a unilateral request for extension of time, assume that such extension will be granted; however, considerations of fairness may warrant a limited enlargement of time in extraordinary circumstances, e.g., where a filing deadline approaches or passes while a good faith request for extension of such deadline is pending.

INTERVENTION: REQUEST FOR ADDITIONAL TIME

Use of requests for extensions of time as a procedural delay tactic will not be tolerated.

MEMORANDUM AND ORDER

On October 25, 1974, the Atomic Energy Commission published notice that a hearing would be held on the application to construct Koshkonong Nuclear

Plant Units 1 and 2. The notice provided that persons who desired to participate in the hearing could petition to intervene by November 25, 1974, and further designated an Atomic Safety and Licensing Board to receive and rule on such petitions and to conduct the hearing. Under ordinary circumstances, this procedure would have led in an orderly manner to the identification of interested parties, specification and refinement of issues, undertaking of discovery and finally the hearing itself. A series of procedural motions (and opposition thereto) has, however, had the effect of frustrating that normal adjudicatory process in this case. In this decision we dispose of the outstanding motions and express our expectation that this proceeding—with the cooperation of applicants, staff and public participants—will be promptly placed back on its proper course.

Concerned Citizens of Wisconsin, Inc. (CCOW) and Friends of the Earth (FOE), two groups with apparent standing to participate in this proceeding, telephonically objected to the notice of hearing the day before it was issued. Their objections were detailed in a subsequent petition to "reconsider" the issuance of that notice.[1] That petition was denied, with a full statement of reasons, in a memorandum and order issued on December 17, 1974. CLI-74-45, RAI-74-12 928. Simultaneously, CCOW and FOE were granted an additional 45 days from the date of the order within which to petition to intervene.[2] On December 31, CCOW and FOE filed a "Petition to Vacate" that order, while nonetheless expressly recognizing that "the Commission's rules prohibit more than one petition for reconsideration."

On January 14, CCOW and FOE asked for a further extension of time within which to seek intervention until 45 days after our ruling on the petition to vacate. Satisfied that no cause for an extension had been shown, we denied the

[1] The Acting Secretary of the Commission had specifically advised counsel for CCOW and FOE by telegram on October 21, 1974, that such a petition would be an acceptable way of bringing his objections to the notice to the Commission's attention. As the discussion in the text makes clear, the pendency of that petition and its progeny before the Commission has completely frustrated all efforts of the Atomic Safety and Licensing Board to move toward the resolution of preliminary, prehearing matters in this proceeding.

In the future, such procedural pleadings relating to a matter properly pending before an Atomic Safety and Licensing Board will not be entertained in the first instance by the Commission. The broad authority of boards and presiding officers, including the power to certify questions to the Commission where appropriate, is ample to enable fair and efficient resolution of issues such as those now before us. See 10 CFR 2.718.

[2] This extension of time was appropriately regarded by the Licensing Board as running to the City of Madison, Wisconsin, as well. See Board Order of January 8, 1975 (unpublished).

request, as the Acting Secretary notified counsel for CCOW and FOE by telegram on January 27, 1975.[3]

I. THE PETITION TO VACATE

In petitioner's words, the "grounds" for vacation of the December 17 order are "that the Commission has no basis for statements made therein and . . . that the Wisconsin utilities have acknowledged a two-year delay in moving forward on the power plants." In support of this first premise, petitioners repeat their assertion that "six units not two units are planned." This matter was fully considered in the December 17 order.[4] Contrary to petitioners' interpretation, the six exhibits attached to the petition in no way undermine the determination to hold hearings on the present application for two plants. Petitioners' assertion that these utilities are not now entitled to a hearing on their present plans because they may later decide to apply for approval to construct other plants at other sites—which would necessitate separate hearings—defies logic and must again be rejected.

Petitioners' second ground—the applicants' decision to defer the planned in-service dates for these facilities by approximately two years—is equally unpersuasive, particularly in the absence of even a suggestion that there has been a concurrent decision to defer the planned *start* of construction. In any event, appropriate adjustment of the discovery and hearing schedule is plainly within the power of the Licensing Board to order.

II. THE MOTION FOR EXTENSION OF TIME

The original 30-day period for filing intervention petitions was more than tripled by the December 17 order. Our telegraphic denial of petitioners' request for yet another 45 days indicated that reasons would follow. We had hoped this prompt communication of our decision would avoid any need for the Licensing

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[3] The denial left in effect the January 31, 1975, deadline. Notwithstanding our denial, we provided that a CCOW/FOE intervention petition would be deemed timely if filed within ten days of our telegraphic order.

Though we were unaware of it at the time (Monday, January 27), the Licensing Board on the preceding Thursday had flatly denied the request of the City of Madison for additional time. That ruling, and the reasons given in the Board's supplementary order of January 27 were absolutely correct. Nonetheless, solely to place the City of Madison on the same footing as CCOW and FOE, we honored the City's telegraphic and telephonic requests to treat *its* motion for additional time as pending before us, rather than the Board. Pursuant to the authority delegated to him in 10 CFR 2.772, the Secretary granted the City the same 10 days allowed by us to CCOW and FOE.

[4] CLI-74-45, *supra*, RAI-74-12 at 930, n.2.

Board to further delay the prehearing conference scheduled for February 14, 1975.[5]

In now explaining that denial, we wish to stress that parties (and prospective parties) may not, by the unilateral request for an extension of time, confidently assume that the orderly conduct of business will be suspended. To be sure, there will be extraordinary circumstances where filing deadlines will approach—and even pass—while good faith requests for extension are pending. In such cases simply fairness may lead to at least a limited enlargement of time,[6] even though the grounds asserted are deemed unpersuasive. The knowledge that this is so cannot, however, justify the deliberate disregard of previously imposed deadlines and obligations. As the Appeal Board has succinctly stated in a similar context:

> There inevitably comes a point, however, when considerations of the orderly course of the particular proceeding at bar demand that the line be drawn on further retreat from the enforcement of the conditions imposed in prior orders. In this instance, that point manifestly has been reached.[7]

Constructive participation by all interested parties in the identification and resolution of health, safety and environmental issues is vital to our licensing process. Procedural delay, for delay's own sake, on the other hand, can only frustrate the public interest in a fair and orderly hearing and must not be permitted.

The Petition to Vacate is *denied.*

It is so ORDERED.

By the Commission

John C. Hoyle
Acting Secretary of the Commission

Dated at Washington, D. C.
this 6th day of February 1975.

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[5] See Licensing Board's Order on Petitions to Intervene, dated January 8, 1975 (unpublished).

[6] See, e.g., *Northern Indiana Public Service Company* (Bailly Generating Station, Nuclear-1), ALAB-215, RAI-74-6 1007, 1008-10 (June 24, 1974). Indeed, we provided such a limited enlargement in this case even though grounds for extension were totally lacking.

[7] ALAB-215, *supra,* RAI-74-6 at 1011.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-258

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
William C. Parler, Member

In the Matter of **Docket No. 50-382A**

LOUISIANA POWER AND LIGHT COMPANY

(Waterford Steam Generating Station, Unit No. 3)

Mr. Raymond W. Philipps, Washington, D. C., for the United States Department of Justice.

Mr. Robert C. McDiarmid, Washington, D. C., for the Cities of Lafayette and Plaquemine, Louisiana.

Messrs. Andrew P. Carter and W. Malcolm Stevenson, New Orleans, Louisiana, for the Louisiana Power and Light Company.

Messrs. Benjamin H. Vogler and Lee Scott Dewey for the NRC staff.

Upon appeal by Department of Justice from Licensing Board's initial decision, in antitrust proceeding, approving issuance of construction permit subject to conditions (see Schedule B, Appended to October 24 Memo, RAI-74-10 718, 740-744), ASLAB, with the consent of all parties, amends condition relating to joint ownership access to certain nuclear plants to include expressly applicant's previous commitment to afford joint ownership in certain circumstances.

Condition 4, Schedule B, so amended.

LICENSE CONDITIONS: EXPLICITNESS

License conditions should be as explicit as possible in order to minimize potential for future controversy over the meaning or intent of such conditions.

RULES OF PRACTICE: APPELLATE REVIEW

In contrast to its routine practice in radiological health and safety and environmental proceedings, ASLAB will not, absent extraordinary circumstances, conduct *sua sponte* review of the resolution of purely economic issues posed in an antitrust proceeding.

DECISION
February 3, 1975

Before this Board is the appeal taken by the United States Department of Justice from the November 14, 1974 initial decision of the Licensing Board in this antitrust proceeding involving Unit No. 3 of the Waterford Steam Generating Station. LBP-74-83, RAI-74-11 887. In that decision, the Licensing Board determined that the proper disposition of the antitrust questions relating to this facility was the issuance of a construction permit containing the conditions which had been set forth in Schedule B appended to the Board's memorandum of October 24, 1974. LBP-74-78, RAI-74-10 718, 740-44. These conditions were, in turn, derived from certain commitments made by the applicant (which had been appended to the October 24 memorandum as Schedule A, id. at 738-40).[1] Indeed, some of the commitments to be found in Schedule A were carried over *verbatim* into the license conditions in Schedule B.

What prompted the appeal was an alteration made by the Licensing Board in the terms of Commitment 4 as presented to it. In the June 17, 1974 revised affidavit submitted by its Senior Vice-President, J. M. Wyatt, the applicant had represented that, under that commitment

> If the law of Louisiana should become changed to the extent that property owned jointly is not susceptible of partition and that such joint ownership is not otherwise an impediment to financing, LP&L will also offer joint ownership thereafter of nuclear plants or units in accordance with the other provisions of Commitment No. 4.

For their part, both the Department of Justice and the AEC regulatory staff (now NRC staff) had apprised the Licensing Board that they regarded the Wyatt revised affidavit as putting forth an "acceptable interpretation" of the license conditions which had been agreed upon by all of the parties.[2] Yet, in the

[1] What brought about these commitments (which were in effect proposed license conditions) is discussed in the October 24 memorandum. RAI-74-10 at 718-21.

[2] June 17, 1974 Answer of Department of Justice and AEC Regulatory Staff to Applicant's Motion for Reconsideration, p. 1.

Department's view, certain of the language changes made by the Licensing Board in carrying over Commitment 4 into Condition 4 in Schedule B cast doubt upon whether the applicant was being held to its undertaking respecting joint ownership access as that undertaking had been described by Mr. Wyatt. Although the Department sought clarification of the matter in a motion filed with the Licensing Board following the issuance of the October 24 memorandum, it did not consider the Board's further observations in the November 14 initial decision (RAI-74-11 at 888) to have satisfactorily resolved its difficulty with the phraseology of Condition 4. Hence the appeal to us.

Our examination of the briefs submitted by the respective parties in connection with the appeal tended to confirm what one might well have assumed from these background facts: that there was no genuine dispute respecting what the applicant had committed itself to do but, instead, simply a disagreement respecting whether Condition 4 in Schedule B adequately reflected the commitment. This being so, it seemed to us that there might be no occasion to venture into the thicket of what should or should not be reasonably implied from the terms of Condition 4 as it now stands. If, as all apparently acknowledged, the applicant had expressly committed itself to offer joint ownership in future plants or units given the existence of certain specified circumstances, why not have the license condition incorporate the commitment with equal explicitness?[3] Even if the manifestation of concern on the part of the Department of Justice regarding the language used by the Licensing Board could be said to reflect an over-abundance of caution,[4] in the realm of license conditions there is clearly warrant for being as explicit as possible and thereby minimizing the potential for future controversy over what may have been meant by a particular condition.

In an order issued on January 13, we proposed this solution to the narrow, non-substantive issue posed by the appeal. We now have in hand the concurrence of all of the parties in it. Specifically, it has been agreed that the following paragraph should be inserted between the first and second paragraphs of Condition 4 in Schedule B (see RAI-74-10 at 742-43):

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[3] In this connection, as the Licensing Board correctly noted (RAI-74-10 at 721), it had the "responsibility and inherent power to determine what license conditions [were] appropriate" and thus was not bound to accept the commitments as tendered. But there is nothing in either the October 24 memorandum or the November 14 initial decision to suggest that for some reason the Licensing Board thought that the joint ownership commitment made by the applicant and accepted by the other parties should be narrowed. Nor can we perceive any public interest consideration which might justifiably have led that Board to any such conclusion.

[4] We need not decide that point. It suffices to note that, as formulated by the Licensing Board, Condition 4 does not in so many words incorporate the Wyatt interpretation.

> In the event that the law of Louisiana should be changed to the extent that property owned jointly is not susceptible to partition and that such joint ownership is not otherwise an impediment to financing, the Company must, in accordance with the provisions of its Commitment 4, offer joint ownership in any future nuclear generating plant or unit owned by it (or in which it may acquire an interest in Louisiana) to any entity requesting such access.

Additionally, the parties have agreed that the second sentence in footnote 2 to Condition 4 (id. at 743) should be revised to read:

> Moreover, nothing herein shall be deemed to exclude participation of an entity on a joint venture basis in Waterford Unit 3 if the Company shall in its sole discretion decide to enter into such a joint venture.[5]

We commend the parties for having reached this accord, which we hereby ratify. Not only is it a sensible resolution of the controversy which gives full effect to the legitimate interests of all concerned, but also it has obviated further and time-consuming appellate procedures.

Condition 4 in Schedule B appended to the Licensing Board's memorandum of October 24, 1974 is therefore *amended* in accordance with this opinion. The NRC staff is directed to take the necessary steps to insure that the construction permit issued for Unit 3 reflects the amendments.[6]

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

Mr. Parler did not participate in this decision.

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[5] Principally, this revision adds "in Waterford Unit 3" to the sentence. Although we had not suggested it ourselves, the addition is plainly appropriate for clarification purposes. It removes any possible room for doubt that the "sole discretion" of the applicant is with respect only to this Waterford unit; i.e., that the affording of joint ventures access to future facilities or units is not likewise wholly committed to the applicant's discretion.

[6] We have not considered any aspect of the Licensing Board's disposition of this antitrust proceeding apart from that embraced by the appeal. In radiological health and safety/environmental proceedings, we routinely conduct a review of the initial decision(s) and the underlying record in their entirety (without regard to the reach of any appeal which may have been taken). Absent extraordinary circumstances, however, we see no compelling reason to scrutinize the resolution of the purely economic issues posed in an antitrust proceeding unless one of the litigants is sufficiently dissatisfied with that resolution to bring it before us.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-259

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Richard S. Salzman, Chairman
Dr. Lawrence R. Quarles, Member
Michael C. Farrar, Member

In the Matter of

CAROLINA POWER & LIGHT COMPANY

(Brunswick Steam Electric Plant, Units 1 and 2)

Docket Nos. 50-324
50-325

On the basis of its *sua sponte* review of initial decision in uncontested Section B environmental proceeding, ASLAB affirms Licensing Board's continuation, without modification, of construction permits for Brunswick Units 1 and 2.

DECISION

February 3, 1975

Construction permits for the two nuclear power units of the Brunswick Steam Electric Plant on the Cape Fear River near Southport, North Carolina, were issued on February 7, 1970. This uncontested proceeding[1] was conducted by a Licensing Board convened to determine whether those permits should be modified, terminated or otherwise conditioned to protect environmental values. See 10 C.F.R. Part 50, Appendix D. The Board concluded that the permits should be continued and that no additional conditions were needed to protect the environment. LBP-74-92, RAI-74-12 1144 (December 26, 1974).

[1] As explained in the Board's decision, this proceeding was initially a contested case involving not only environmental considerations relating to the construction permits, but operating license conditions also. The intervenors, applicant and staff were able to resolve all disputed contentions by stipulation (a copy of which appears as Appendix A to the Licensing Board's decision; see RAI-74-12 1170). The matter thereafter continued as an uncontested NEPA review of the construction permit.

No exceptions have been taken from that decision and the time for exceptions has expired. In these circumstances we have conducted our customary *sua sponte* review of the decision and the underlying record. Having found no errors warranting corrective action, the decision of the Licensing Board is *affirmed.*

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-260

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan C. Rosenthal, Chairman
Michael C. Farrar, Member
Dr. Lawrence R. Quarles, Member

In the Matter of

Docket Nos. 50-445
50-446

TEXAS UTILITIES GENERATING COMPANY ET AL.

(Comanche Peak Steam Electric Station, Units 1 and 2)

Mr. Nicholas S. Reynolds, Washington, D. C., (Messrs. J. Irion Worsham and Spencer C. Relyea of counsel) for the applicant, Texas Utilities Generating Company

In considering whether a remand of this uncontested proceeding is necessary to correct the deficiencies relating to the environmental assessment of the cooling reservoir outlines in ALAB-255, ASLAB determines that supplementation of the record should be attempted through staff affidavit evaluating the nature and quality of the agricultural land proposed for use as cooling reservoir; ASLAB will then decide whether record supports determination that the land is of such low productivity potential that, without first conducting the *LaSalle* land-use inquiry, the reservoir on balance is the preferred cooling alternative.

Staff requested to submit affidavit.

NEPA: LAND-USE INQUIRY

The land-use inquiry identified in *LaSalle* (ALAB-153 and ALAB-193) requires an initial determination of the degree of suitability of the land in question for agricultural or other uses.

NEPA: LAND-USE INQUIRY

The greater the potential of land to serve well some specific purpose apart from a proposed cooling lake or reservoir, the more rigorous must be the inquiry into the likely extent to which, over the span of the life of the reactor, appropriate land will be needed for that purpose.

NEPA: LAND-USE INQUIRY

Evaluation of the nature and quality of land proposed for use as a cooling lake or reservoir should consider the productivity potential of the land, as well as the degree of its present utilization.

FINDINGS OF FACT: STAFF EXPERTISE
NEPA: INDEPENDENT INQUIRY BY FEDERAL AGENCY

ASLAB will not make essential basic environmental findings on matters which did not receive either staff consideration in the FES or adequate attention at the hearing; applicant's Environmental Report cannot be taken as a substitute for the appraisal of the staff. *Greene County Planning Board* v. *Federal Power Commission*, 455 F. 2d 412, 418-19 (2nd Cir.), cert. denied 409 US 849 (1972).

NEPA: RULE OF REASON

A rule of reason governs an agency's assessment of environmental costs of a proposed action.

MEMORANDUM AND ORDER

February 26, 1975

I

A. In ALAB-255, NRCI-75/1 3 (January 23, 1975), we expressed doubt as to the sufficiency of the environmental analysis of one aspect of the Comanche Peak Steam Electric Station, Units 1 and 2. Specifically, our concern related to the treatment in the Final Environmental Statement of the environmental costs associated with the proposed construction of a 3,228 acre reservoir for the purpose of providing the facility with cooling water. A significant portion of this land was described as "improved cropland." In seeming disregard of the

principles established in our *La Salle* decisions,[1] the FES did not explore the degree of likelihood that this cropland might be needed to help fulfill the Nation's presently foreseeable demands for agricultural products. And this deficiency seemed to us to be of significance by reason of the fact that the FES reflected the acceptability of an alternative cooling system which, although having one comparative disadvantage, would necessitate the consumption of a *de minimus* amount of land. As we saw it, in this circumstance an informed choice between the two alternatives could not be made without having in hand an evaluation of the potential impact from a food supply standpoint, of diverting the cropland from agricultural use to the reservoir.

For these reasons, we reached the tentative conclusion that a remand for the taking of further evidence was required in the fulfillment of the Commission's responsibilities under the National Environmental Policy Act. Acknowledging, however, the possibility that some relevant consideration might have been overlooked, we stayed our hand to enable the parties to show cause, if any there be, why a remand is not warranted.

The NRC staff chose not to respond to our invitation to submit a memorandum on the issue. Although its letter advising of that decision offers no explanation, it is fair to assume that the staff was unable to discern a basis upon which it might urge that a remand was unnecessary. The applicant, however, has filed an extensive memorandum in which it strenuously insists that the existing record contains sufficient information on the land-use question to enable us to conclude that, on a cost/benefit balance, the reservoir is the superior choice.

The applicant's argument commences with the suggestion that the *La Salle* rule has no proper application in circumstances where the land which is to be diverted to a cooling lake or reservoir is of "poor agricultural productivity." We are asked to hold that only if, as in *La Salle*, prime agricultural land is involved must there be a consideration of the potential impact of the diversion in terms of future *national* needs for agricultural products. In the case of low quality land, the applicant reasons, it is enough to determine whether, in the region of the reactor site, "similar suitable land is in abundant supply."

Proceeding on this premise respecting the reach of *La Salle*, the applicant goes on to furnish us with a number of references to disclosures in its own Environmental Report[2] which we are told collectively establish that the land in question here, unlike that at issue in *La Salle*, is of "relatively poor agricultural quality"—and that equivalent land is in abundant supply in the two counties surrounding the proposed reservoir. Beyond that, relying once again on information in its Environmental Report, the applicant offers the possibility

[1] *Commonwealth Edison Co.* (La Salle County Nuclear Station, Units 1 and 2), ALAB-153, RAI-73-10 821 (October 19, 1973) and ALAB-193, RAI-74-4 423 (April 15, 1974).

[2] The Environmental Report was introduced into evidence below.

that, should an acute food shortage develop, the reservoir might be utilized as a commercial fishery.

The lack of agricultural need for the land being (in its view) thus established, the applicant moves forward to a cost/benefit comparison of the reservoir and the other viable alternative referred to in ALAB-255—that of mechanical draft wet cooling towers. The conclusion reached is that the reservoir is preferable because, *inter alia,* (1) contrary to the staff's findings in the FES, the reservoir will consume less water; (2) there is a significant power penalty associated with use of cooling towers; and (3) cooling towers are more costly to maintain and, in this instance, might require the construction of an evaporation pond to contain the tower blowdown.

Finally, implicitly recognizing that much of what it has urged upon us (particularly insofar as the quality of the reservoir land is concerned) is not covered by the findings of the Licensing Board, the applicant calls upon us to remedy that deficiency ourselves. We are reminded that we have the power to "make entirely new findings . . . upon the [existing] record." *Trustees of Columbia University in the City of New York,* ALAB-29, 4 AEC 680, 682 (1971). Our attention is also called to *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, RAI-73-11 1003, 1013 (November 30, 1973), in which we modified a FES by adding to it certain disclosures of record.

B. 1. The applicant is quite right that *La Salle* was written in the context of a proposal to divert agricultural land of high productivity to cooling lake purposes. And we can further agree with it that, in carrying over the principles there enunciated to other cases similarly involving large expenditures of land for a cooling system, regard must be given to the character and quality of that land. A "rule of reason" governs in the execution of the NEPA mandate. See *e.g., Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-74-5, RAI-74-1 19, 24 (January 24, 1974); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, RAI-73-5 331, 351-52 (May 18, 1973); *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, RAI-73-10 831, 836 (October 26, 1973); *Consolidated Edison Co.* (Indian Point Station, Unit 2), ALAB-188, RAI-74-4 323, 358 (April 4, 1974). It obviously would be wholly unreasonable to expect, as part of the assessment of the environmental costs of inundating acreage of manifestly marginal agricultural utility, the undertaking of an elaborate analysis of the likely national supply of and demand for agricultural products. For, no matter what the outcome of such an analysis might be, little environmental impact could be assigned to the removal from agricultural production of land which could make only an insubstantial contribution to meeting the forecasted demand.

In short, the starting point of any exploration into the land-use issue identified in *La Salle* is appropriately the degree of suitability of the land in question for agricultural or other uses. The results of that exploration will shape what must be then done in the process of measuring the environmental costs

attendant to flooding the land. The greater the potential of the land to serve well some specific purpose apart from a cooling lake or reservoir, the more rigorous must be the inquiry into the likely extent to which, over the span of the life of the reactor, appropriate land will be needed for that purpose.

2. The difficulty confronting the applicant here, however, is that neither the FES nor the Licensing Board's October 11, 1974 initial decision[3] provides an adequate basis for a holding that the land to be taken by the Comanche Peak reservoir is of such marginal productivity that no warrant existed to delve any deeper into the question of the impact of its withdrawal from agricultural production. At least tacitly, the applicant concedes as much. As previously noted, it asks us to make the "poor agricultural productivity" finding on the footing of what is set forth in its Environmental Report. There is not the slightest suggestion in its memorandum that such a finding could be derived from disclosures in the FES.

Except to the extent assumed by some other federal agency under a "lead agency" agreement, the NEPA responsibility for appraising the environmental impact of nuclear licensing actions lies with the Commission. The carrying out of that responsibility involves in the first instance the preparation of an FES by the NRC staff. The role played by the FES as the licensing process moves forward is a crucial one. To be sure, in fulfilling its duty to strike the ultimate cost/benefit balance, the Licensing Board must take into account all of the relevant evidence in the record. And the FES may be amended by that Board (or by us upon review) to reflect additional information adduced during the hearing. *Maine Yankee,* ALAB-161, *supra;* 10 CFR 51.52(b) (3), 39 *FR* 26279 (July 18, 1974). Nonetheless, the FES stands as the product of the study made by that segment of the agency which has the specific function of ferreting out the baseline facts upon which the final environmental judgments required by NEPA must be made. That being so, it necessarily is a prime ingredient in the ultimate fashioning of the agency's NEPA determinations by the adjudicatory tribunals.

Leaving aside any question of our authority to do so, we are therefore most reluctant to make essential basic environmental findings on matters which did not receive either staff consideration in the FES or adequate attention at the hearing. This is not to suggest that applicant environmental reports in general (or the Environmental Report submitted by this applicant in particular) must be looked upon with suspicion. To the contrary, we think it highly likely that the Environmental Report before us is reliable and that its discussion relevant to the quality of the reservoir land is complete and accurate. For all of that, however, it cannot be taken as a substitute for the appraisal of the staff. See *Greene County Planning Board* v. *Federal Power Commission,* 455 F.2d. 412, 418-19 (2nd Cir.), certiorari denied, 409 U.S. 849 (1972).

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[3]As noted in ALAB-255, it was the October 11 decision (LBP-74-75, RAI-74-10 673) which dealt with the environmental issues.

3. In sum, on the existing state of the record we decline to make the findings as to land productivity urged upon us on the strength of the Environmental Report alone. Consequently, were the issue of cooling system alternatives in contest, a remand would most certainly be required for the receipt, at the very least, of the staff's evaluation of the productiveness of the reservoir land. Since, however, there is no contest, we can attempt to obtain in a less formal fashion a sufficient supplementation of the record to enable us to decide whether the land in question is of such low productivity potential that, without first conducting the analysis of the future national need for agricultural products which was ordered in *La Salle*, it can be said that, on balance, the reservoir is the preferred cooling alternative.

To this end, the staff is requested, within 40 days of the date of this order, to submit to us, *in affidavit form*, its own evaluation of the nature and quality of the land here involved. This evaluation should consider not only the degree of present utilization of the land for agricultural purposes but, as well, whether a higher productivity potential may exist. Insofar as its appraisal is grounded upon disclosures in the Environmental Report, the staff should make clear the extent, if any, to which those disclosures are confirmed by independent information at its disposal.

If it wishes to reply, the applicant shall notify the Secretary of this Board within five days of its receipt of the staff's submission. The Board will then determine a filing date.

II

ALAB-255 also requested that any memorandum filed by the staff on the *La Salle* question also explain the intended import of certain of its proposed site criteria findings which the Licensing Board had adopted in paragraph 65 of the October 11, 1974 initial decision. Since the staff elected not to file a memorandum, we have not received the benefit of that explanation. The applicant, however, apprised us in its memorandum as to what it assumes the staff had in mind. At the time it makes the submission required by Part I of this order, we would like the staff to tell us whether the applicant's assumption is correct or whether the proposed findings in question were intended to be given some different meaning.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-261

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Richard S. Salzman, Chairman
Michael C. Farrar, Member
Dr. W. Reed Johnson, Member

In the Matter of

TENNESSEE VALLEY AUTHORITY

(Sequoyah Nuclear Plant, Units 1 and 2)

Docket Nos. 50-327
50-328

Messrs. Robert H. Marquis, General Counsel, Herbert S. Sanger, Jr., David G. Powell, Alvin H. Gutterman and James F. Burger, Knoxville, Tenn., for the applicant, Tennessee Valley Authority.

Messrs. Robert V. Zener, General Counsel, Ray McDevitt and Lee Evan Caplin, Washington, D. C., for the Environmental Protection Agency, *amicus curiae.*

Mr. Frederic S. Gray, for the Nuclear Regulatory Commission Staff.

Upon *sua sponte* review of Section B proceeding, ASLAB upholds Licensing Board's initial decision continuing effectiveness of Sequoyah construction permits, modifying permits to include agreed-upon environmental conditions and unopposed condition directing applicant's (TVA) compliance with state water quality standards.

Initial decision affirmed, as modified.

LICENSE CONDITIONS: COMPLIANCE WITH STATE WATER QUALITY STANDARDS

A construction permit issued to a federal agency (TVA) may be conditioned on compliance with state water quality standards where parties do not object and there is no apparent legal bar to doing so.

DECISION

February 27, 1975

Permits to construct the Sequoyah Nuclear Plant, Units 1 and 2, on a site on the western shore of Chickamauga Lake in Hamilton County, Tennessee were issued to the applicant Tennessee Valley Authority on May 27, 1970.[1] In accordance with the Commission's rules[2] implementing the National Environmental Policy Act of 1969,[3] a hearing was recently held before a Licensing Board to consider whether the permits "should be continued, modified, terminated, or appropriately conditioned to protect environmental values."[4]

On December 2, 1974, the Licensing Board issued an initial decision in which it concluded that the construction permits should be continued.[5] No exceptions to that decision have been filed. In accordance with our usual practice, we have *sua sponte* conducted a review of the decision and underlying record and have determined that the decision should be affirmed with certain modifications.

I

One of the matters considered in the environmental review of the Sequoyah units was the effect of their cooling water discharges on Chickamauga Reservoir.[6] With respect to those discharges, the initial decision stated that the plant "will comply with the currently approved Tennessee water quality standards, as required by Section 313 of the Federal Water Pollution Control Act Amendments of 1972, 33 U. S. C. § 1251 *et seq.*" RAI-74-12 at 1004. As authority for that statement, the Board cited pages 2.6-2 and 2.6-3 of the Final Environmental Statement which had been prepared by the applicant as the "lead agency." In pertinent part, the FES represented that the plant will require cooling towers to meet the Tennessee standards, that such towers are under construction, but that the applicant would operate the plant to comply with the state standards "both during the interim period and after tower construction is complete." The Licensing Board did not condition the construction permits on compliance with that commitment and the permits currently include no such specific requirement.

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[1] The initial decision authorizing issuance of the construction permits is reported at 4 AEC 340 (1970). After informal review of the uncontested decision, we determined that formal review was not warranted. ALAB-5, 4 AEC 355 (1970).

[2] 10 C. F. R. Part 50, App. D., § B (1974).

[3] 42 U. S. C. § § 4321 *et seq.*

[4] 39 *F. R.* 11131, 11132 (March 25, 1974).

[5] LBP-74-86, RAI-74-12 999.

[6] FES, § 2.6.

Against that background we issued an order on January 15, 1975 directing the applicant and staff to brief us on whether, in light of the applicant's status as a federal agency, such a condition should be inserted in the construction permits. We also invited the Environmental Protection Agency (EPA) to file an *amicus curiae* brief on the question. EPA accepted our invitation and took the position that a condition requiring compliance with those standards should be included in the construction permits. Both the NRC staff and the applicant argued that such a condition was not necessary but had no objection to its inclusion in this case.

Our review of the briefs and the authorities they cite reveals that the legal question we posed is easier to state than to resolve. To attempt to do so would require delving into the intricacies of the statutes and legal policies involved in the interplay between the National Environmental Policy Act and the Federal Water Pollution Control Act, as well as mapping the contours of responsibility among three federal agencies (TVA, EPA and NRC) for overseeing state water quality standards at the nuclear facility site. The disparate postures adopted by the parties on the issues confirm our judgment that the correct answer is by no means manifest either on the face of the statutes or from their underlying histories. None of the parties objects, however, to inserting a requirement for compliance with the Tennessee water quality standards in the particular construction permits under consideration. In the circumstances, we see no legal bar to amending the permits to add such a condition and we deem it the wisest course simply to direct this be done.[7] In taking this course, we avoid the necessity of deciding a difficult question before the murky waters in this area have been clarified.

II

Our January 15, 1975 order also asked the parties whether the construction permits should be amended to include two environmental conditions which had been presented to the Licensing Board in the form of an agreement between the applicant and staff. The Board had noted that no action by it was necessary to require compliance with the agreement. RAI-74-12 at 1000. The permits did not include the conditions at the time our order was issued.

The applicant says there is no necessity to amend its permits since the obligations included in the conditions could be imposed on it by virtue of other authority, but it offers no objection to such amendments. The staff indicates

[7] See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, RAI-74-12, 957, 977 (December 24, 1974).

that it has prepared the amendments and expects to issue them shortly. In these circumstances we find it appropriate for the provisions to be incorporated into the construction permits. If not already accomplished, the staff should effectuate the appropriate amendments.

III

Except for the matters discussed, our review discloses no matters warranting corrective action. Accordingly, the initial decision is *affirmed* as modified in Parts I and II above. The regulatory staff is requested to amend the construction permits in accordance with this decision by March 30, 1975, and to furnish copies to the applicant, *amicus curiae*, the Licensing Board and this Board at the time it does so.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-3

ATOMIC SAFETY AND LICENSING BOARD

Daniel M. Head, Chairman
Harry Foreman, Member
Walter H. Jordan, Member

In the Matter of

NORTHERN INDIANA PUBLIC SERVICE COMPANY

(Bailly Generating Station, Nuclear-1)

Docket No. 50-367

February 21, 1975

SUPPLEMENTAL INITIAL DECISION
(Slurry Wall Construction)

APPEARANCES

William H. Eichhorn, Esq., Kathleen H. Shea, Esq., Maurice Axelrad, Esq., for Permittee, Northern Indiana Public Service Company

Robert J. Vollen, Esq., and Edward W. Osann, Jr., Esq., for the Joint Intervenors, Porter Chapter of the Isaac Walton League of America, *et al.*

Marvin N. Benn, Esq., Assistant Attorney General for the State of Illinois

Stuart A. Treby, Esq., for the United States Nuclear Regulatory Commission

In remand hearing limited to consideration of the environmental effects of construction of a slurry wall as a water barrier for keeping excavation of nuclear plant site dry, Licensing Board finds the potential environmental benefit from slurry wall construction substantially outweighs the negligible adverse impacts

associated with the slurry wall proposal. This finding results from an in-depth analysis, including consideration of the ramifications of the slurry wall being totally or partially unsuccessful in accomplishing its intended purpose, and the environmental costs of removal or nonremoval of the wall after its productivity ceases.

Slurry wall construction permitted, subject to specified conditions for protection of the environment.

RULES OF PRACTICE: DISCOVERY

Parties to judicial or quasi-judicial proceedings are not entitled to discovery as a matter of right; under Rules of Practice, Commission may impose limitations on discovery (see 10 CFR §2.740(b)).

NEPA: COST-BENEFIT ANALYSIS

In considering slurry wall construction, Licensing Board must perform cost-benefit analysis of slurry wall but need not reopen cost-benefit balance for entire facility. Board must determine how decision to permit such construction affects cost-benefit balance reached in original construction permit proceeding, considering the effect on that balance of both a successful and an unsuccessful wall.

I. BACKGROUND AND AUTHORITY

The Northern Indiana Public Service Company (the Permittee) was authorized by the United States Atomic Energy Commission (the Commission)[1] by construction permit CPPR-104 issued May 1, 1974, to construct the Bailly Generating Station, Nuclear-1 (the facility). The granting of this construction permit was authorized by an Atomic Safety and Licensing Board in an Initial Decision following an extensive evidentiary hearing. *Northern Indiana Public Service Company* (Bailly Generating Station, Nuclear-1), LBP-74-19, RAI-74-4, 557 (April 5, 1974). That Initial Decision was affirmed by the Atomic Safety and Licensing Appeal Board (the Appeal Board), ALAB-224, RAI-74-8, 244 (August 29, 1974) and became the final action of the Commission when the

[1] Pursuant to an executive order dated January 15, 1975, the Nuclear Regulatory Commission (NRC) was activated effective January 19, 1975. NRC, under the terms of the Energy Reorganization Act of 1974 (Public Law 93-438; 88 Stat. 1233), will carry out the licensing and regulatory functions formerly assigned the Atomic Energy Commission.

Appeal Board decision was not disturbed by the Commission during the time provided under the Commission's Rules of Practice for review thereof. On September 13, 1974, the final Commission action was appealed by the Joint-Intervenors[2] to the United States Court of Appeals for the Seventh Circuit and is currently pending before that Court in Appeal No. 74-1751.

One of the issues in controversy in the above-described licensing proceeding was the effects of dewatering the site to keep the excavation dry during construction. The Commission approved a well-point dewatering system proposed by the Permittee on a finding that there would only be a limited lowering of the groundwater table in the area immediately adjacent to the site. No adverse impact is anticipated on the Indiana Dunes National Lakeshore. However, an environmental monitoring program has been provided to assure that any dewatering effects in the Indiana Dunes National Lakeshore will be detected and mitigated, thereby preventing significant adverse environmental impact to the National Lakeshore. Bailly Initial Decision, *supra,* 589-591.

In June 1974, the Permittee first considered the use of a slurry wall to keep the construction excavation dry, in lieu of using the well-point dewatering system (Tr. 65-66).[3] Following investigation, the Permittee submitted a formal proposal on September 6, 1974, to the Commission Regulatory Staff (the Staff) seeking approval to construct the slurry wall. The Staff evaluated the slurry wall proposal and, on October 3, 1974, approved its use after finding it acceptable from an environmental standpoint.

By Memorandum and Order issued October 3, 1974, the Commission, *sua sponte,* reopened the record in this case and directed that an expedited hearing be held limited to the environmental effects, if any, of construction of the slurry wall. In view of the pendency of the appeal before the Seventh Circuit, the Commission instructed its counsel to file appropriate motions seeking leave of that Court to conduct the further hearing. Counsel for the Commission took this action and permission to reopen the administrative proceeding to hold the hearing was granted by the Court of Appeals' Order dated October 16, 1974. It is under the authority of the Commission Memorandum and Order of October 3, 1974, that the evidentiary hearing was held on the environmental effects of the slurry wall.[4]

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[2] Porter County Chapter of Isaac Walton League of America, Inc., Concerned Citizens Against the Bailly Nuclear Site, Businessmen for the Public Interest, Inc., James E. Newman, Mildred Warner and George Hanks.

[3] The transcript of the hearing held on the slurry wall will be cited herein as "Tr."

[4] For the purpose of clarity, the Board will refer to the reopened proceeding on the slurry wall as "this proceeding" and to the prior proceeding on the construction permit as "the basic licensing proceeding." They are, of course, technically only one proceeding as the hearing on the slurry wall constitutes a reopening of the previous licensing proceeding.

The Commission Memorandum and Order of October 3, 1974, directed that the hearing on the slurry wall be conducted before an Atomic Safety and Licensing Board (the Board) to be appointed by the Chairman of the Licensing Board Panel. The Chairman of the Licensing Board Panel established this Board on October 4, 1974, and it consists of Dr. Harry Foreman and Dr. Walter H. Jordan as technical members and Daniel M. Head as Chairman.

In addition, the Commission Memorandum and Order of October 3, 1974, specified that the parties to the hearing include the Permittee, the Staff, and those intervenors who contested the dewatering issue in the prior licensing hearings (the Joint-Intervenors). In addition, the State of Illinois moved to participate in the hearing on the slurry wall as an interested State pursuant to 10 CFR 2.715(c). This motion was granted by the Board on October 23, 1974.

An evidentiary hearing was held by the Board in Valparaiso, Indiana on October 31—November 1, 1974, and on November 6—7, 1974. During this hearing, evidence was presented by the Permittee and the Staff, with limited participation by the Joint-Intervenors and the State of Illinois.

On November 22, 1974, the Board issued an Initial Decision (LBP-74-85, RAI-74-11, 901), in which it authorized construction of the slurry wall, subject to specified conditions. An appeal was taken to that Initial Decision by the Joint-Intervenors and Illinois. Following oral argument, the Atomic Safety and Licensing Appeal Board (the Appeal Board) vacated the Initial Decision and remanded the cause to this Board for further evidentiary proceedings on the environmental impact, if any, of the slurry wall (Appeal Board Order of December 16, 1974, RAI-74-12, 988). The purpose of the reopened hearing was to permit the Joint-Intervenors and Illinois (1) to cross-examine such of those witnesses who appeared on behalf of the Permittee and the Staff at the prior hearing sessions, and (2) to present their own affirmative relevant evidence.

Pursuant to the remand order, a further evidentiary hearing was held by the Board in Portage, Indiana and Des Plaines, Illinois on January 3, 7—9, 14 and 21, 1975. The Joint-Intervenors and Illinois cross-examined all the witnesses who previously testified on behalf of the Permittee and the Staff, and presented four additional witnesses, one testifying for the Joint-Intervenors and three for Illinois.

In remanding, the Appeal Board directed this Board to render a supplementary initial decision which may reinstate such portions of the vacated November 22, 1974 Initial Decision as are not affected by the Appeal Board action or the additional hearing (ALAB-249, RAI-74-12, 980, 988). The Board has in this Supplemental Initial Decision reinstated substantial portions of the November 22, 1974 Initial Decision. However, for purpose of clarity, the Board has repeated the reinstated parts rather than incorporated them herein by reference. To facilitate review, the Board will indicate at the beginning of each finding of fact and conclusion of law whether it is reinstated, reinstated with added references, revised or entirely new.

To fulfill its responsibilities to determine the environmental effects, if any, of the slurry wall, the Board in this Supplemental Initial Decision will make detailed Findings of Fact and will set our appropriate Conclusions of Law. Also, there will be included a Supporting Opinion to elaborate as needed upon the rationale for certain of the findings and rulings. Finally, the Board will specify appropriate conditions for protection of the environment and will promulgate an Order ruling on the Permittee's proposal to construct the slurry wall.

II. FINDINGS OF FACT

A. Description of the Slurry Wall Proposal

1. (Revised I.D. Finding of Fact 1)

The slurry wall, as proposed by the Permittee, would be composed of a slurry of bentonite clay, cement, and water which is to be prepared and injected under pressure into the soil by means of a vibrated steel I-beam. By repeated overlapping injections of the slurry with the I-beam, a continuous slurry wall will be formed in the ground. The slurry wall is to be installed around the perimeter of the construction excavation made to contain the radwaste, reactor, auxiliary and turbine buildings at the facility (Permittee Testimony, Attachment A, p. I; Permittee Ex. SW-1). The proposed slurry wall will be continuous except for a small area in the northeastern portion where it will connect to sheet piling already in place (Permittee Ex. SW-2; Tr. 704-05, 848-49, 864-65). The excavation site is approximately 900′ north to south and 250′ east to west resulting in a slurry wall of approximately 2300′ of a thickness averaging 3″ and extending into the ground approximately 30′ (Staff Testimony, p. 1;[5] Permittee Exs. SW-1 and SW-2; Tr. 1046-47, 1049-50, 1200, 1226-29, 1231-32, 1244-47). In addition, there is to be an auxiliary east-west cutoff slurry wall in the southern portion of the excavation (Permittee Testimony, Attachment A, p. II; Tr. 419-20, 472-76; Permittee Exs. SW-1 and SW-2).

2. (Revised I.D. Finding of Fact 2)

The slurry mixture to be used in constructing the slurry wall will contain approximately 2–4% prepared bentonite, 11% cement and 85–87% water (Permittee Testimony p. 1; Tr. 1203-04). The prepared bentonite is being supplied by the American Colloid Company (Tr. 222), and consists of bentonite to which an organic polymer wetting agent is added (Tr. 226, 246, 678, 736-37). Bentonite is a natural montmorillonite clay which, in this case, is mined in

[5]The Staff's prepared testimony is incorporated into the transcript following page 534.

Wyoming. It consists of silica, alumina, chemically-bound water, ferric oxide, magnesia, soda and small fractions of other minerals, some of which are gypsum, mica, feldspar, volcanic ash, and quartz (Permittee Testimony, Attachment A, pp. III-IV; Tr. 223-24). Bentonite is chemically inert and possesses a unique ability to absorb water and swell. It will swell from ten times to as much as twenty times its dry volume (Permittee Testimony, p. 3; Tr. 225). The wetting agent, polyacrylic acid, will be added to the bentonite to the maximum extent of one quarter of 1% (Tr. 221-22, 226, 678-80). The purpose of the wetting agent is to increase the speed of swelling and gelling of the bentonite on mixing with water (Tr. 226). When a wetting agent is used, the swelling and gelling of the bentonite which ordinarily requires a period of eight hours for completion may be accelerated to two hours (Tr. 227). In the preparation of the slurry, the cement will be added to the mixture after the bentonite has been fully and completely dispersed in the water (Tr. 261). The cement has no effect on the intrinsic properties of the water-bentonite mixture and is added to increase the viscosity of the slurry and to give additional erosion protection to the proposed slurry wall (Permittee Testimony, p. 3; Tr. 261, 687-88, 1015-16).

3. (Reinstated I.D. Finding of Fact 3)

The slurry wall construction will require approximately 70 tons of bentonite (delivered in closed rail cars) and 250 tons of cement (delivered in bulk transport trucks) (Permittee Testimony, p. 2; Tr. 488). These materials are pneumatically conveyed to closed silos for storage next to a mixing plant which is close to the southeast corner of the excavation (Permittee Testimony, Attachment A, p. IV; Tr. 339-347).

4. (Revised I.D. Finding of Fact 4)

The preparation of the slurry mixture and the injection of the slurry mixture into the ground will be performed by the Thatcher Engineering Company and the Germany-based Holzmann Company acting as a joint venture (Tr. 296-97, 333, 994). The Holzmann Company has had extensive experience with installation of slurry walls in Europe (Permittee Testimony, Attachment A, pp. I-II; Tr. 491-93, 808-21, 1024-27). Additionally, the joint venture has had experience with the type of equipment to be used at Bailly in installing approximately 30,000 ft^2 of slurry wall at the Permittee's Schaffer site (Tr. 849, 1200; see Finding of Fact 17, *infra*). Some equipment and the technical people to supervise the preparation of the slurry mixture and the manner in which it is injected into the earth are to be supplied by the Holzmann Company. Thatcher Engineering Company will supply other equipment and personnel necessary to perform the work (Tr. 333-34, 802-06, 821-22, 825-26, 833, 994-95).

5. (Reinstated I.D. Finding of Fact 5)

The method of preparing slurry mixture is as follows: (1) the dried prepared bentonite is transported from its storage silo by means of a screw auger located at the bottom of the silo to an adjacent mixing plant, and is mixed with water while enroute to the mixing plant; (2) this mixture is thoroughly blended by repeated recycling in the mixing plant until it reaches the proper consistency; (3) the dried cement, from its storage silo, is conveyed by hose with a screw auger to the mixing plant where it is added to the bentonite and water mixture; and (4) the mixture of prepared bentonite, water and cement in turn is blended by recycling in the mixing plant until it reaches the proper consistency (Tr. 343-47).

6. (Revised I.D. Finding of Fact 6)

Qualified personnel on site with experience in slurry wall installation will supervise the mixing time and, as part of quality control, will test the slurry mixture in order to ascertain that it has the desired characteristics and adjust the proportion of bentonite if necessary.[6] Samples will be taken from the mixing plant and the container from which the slurry is actually pumped into the ground. Specific weight of the slurry will be measured twice daily by use of a mud balance, testing equipment approved by the American Petroleum Institute. Viscosity will also be tested twice daily by the marsh funnel test. Sedimentation will be determined on the basis of observation of samples after six, twelve, and twenty-four hours. Finally, in addition, the slurry will be tested for permeability before injection. Also, permeability tests will be performed on samples from the installed wall taken approximately three feet below the surface (Tr. 334-38, 859, 1008-09, 1213, 1236-37).

7. (Revised I.D. Finding of Fact 7)

The slurry mixture is to be placed into the earth by means of a vibrating steel I-beam. The steel I-beam has a width of approximately 31½ inches, 12½ inches flanges and will be approximately 55 to 60 feet long. Running lengthwise down the middle of the steel I-beam and welded to it will be a 1¼ inch injection pipe, at the bottom of which is a nozzle. The leading edge of the steel I-beam is plated with a blade similar to the type used on earth graders or is built up with a hard-surfaced material such as stellite. The steel I-beam is connected to a vibrator, which is connected to a lead by two clamps. The lead is used to control the vertical alignment of the steel I-beam during insertion into the ground. The

[6] The site manager for NIPSCO is responsible for assuming that specifications are met and tests performed. He will perform similar tests on occasion in order to verify the results. Finally, the NIPSCO quality assurance personnel will perform audits of the work done by others (Tr. 444-45).

equipment is supported by a construction crane (Tr. 351-60, 692-99, 834-38, 840-45, 876-78, 892-99, 919-20, 924-29; Permittee Testimony, Attachment A, p. II). Alignment of the steel I-beam for entry into the ground is achieved by using a piece of reinforcing steel as a peg which marks the back flange of the previous beam or, in the case where a new line of insertions is to be made, one hydraulic jack at the bottom of the beam is used to bring the beam into vertical plumbness. Plumbness is checked by the foreman by observing pendants or plumbs that are hanging on the leads plus a four-foot carpenter's level capable of being read to within a quarter of an inch within four feet (Tr. 929-930).

8. (Reinstated I.D. Finding of Fact 8, with additional references)

The slurry mixture is pumped from the mixing plant into a container on a skid which is located behind the vibrating steel I-beam equipment. The mixture is then pumped to the top of the steel I-beam and into the injection pipe attached to it. The slurry mixture is injected under a controlled pressure of about 150 to 200 psi as the steel I-beam begins to penetrate downward into the earth (Tr. 347-48, 1020-23). The steel I-beam is then vibrated through the sand until it penetrates a water impervious clay layer that underlies the site (Tr. 361-62). Penetration into the clay layer, which will be approximately 6 inches, can be determined by the following three indicators: (1) a change in the sound of the vibrator; (2) a change in the reading on the ammeter located on the generator that supplies power to the vibrator; and (3) a change in the rate at which the slurry is being injected (Tr. 362). The depth of penetration into the clay can be determined from calibrations on the I-beam (Tr. 363). As the steel I-beam is extracted from the earth the slurry mixture continues to be injected, filling the void left by the steel I-beam. This procedure is repeated with a minimum overlap of 4 inches on each insertion to obtain continuity between individual sections (Permittee Testimony, Attachment A, p. III; Tr. 366, 471-72, 845-48, 930-31).

9. (Revised I.D. Finding of Fact 9)

When injected under pressure, the slurry fills the area representing the beam's cross section and may penetrate the spaces between individual grains of sand. It forms an impermeable barrier to the flow of water. The slurry mixture will gel within two hours and the wall will remain plastic and thixotropic indefinitely after installation (Permittee Testimony, p. 3 and Attachment A, p. IV; Tr. 1231-32, 1244-47). Used in this context, the term thixotropic refers to the ability of bentonite to gel, to liquify when subject to shearing stresses, and then to regel (Tr. 1014). The addition of cement to the slurry does not affect this characteristic (Tr. 238-39, 1015-16, 1183-84).

10. (New)

There are two areas where the slurry wall will be penetrated by pipes coming from the plant to areas outside the slurry wall. The circulating water pipes will run from the condenser to the cooling tower located south of the excavation penetrating the south slurry wall. A 36" drainage pipe may penetrate the north slurry wall (Tr. 790-96; Board Exs. SW-1 and SW-2). However, suitable means of sealing the area around these pipe penetrations have been identified and such penetration of the slurry wall will have an insignificant effect on its overall performance as a water barrier (Tr. 720, 866-68).

11. (New)

The top of the slurry wall at the south end of the excavation is planned to be at elevation +24 feet although observation well No. 18, some 600 feet to the east, has recorded water levels as high as +25 feet (Tr. 881, 904-05). Selection of the 24-foot elevation was based on an assessment of what groundwater levels are likely to be at the south end of the wall (Tr. 875). The assessment includes observations made since 1972 (Tr. 875) and recognizes that groundwater levels at the slurry wall can be expected to be somewhat lower than at well No. 18 (Tr. 886-87). There exists a westward gradient from observation well No. 18 to the excavation (Tr. 1115-16). If the slurry wall is installed, the westward gradient would disappear and the groundwater level could on occasion rise higher than the slurry wall (Tr. 1125-28). If this occurs, there would be some differential head but the amount of seepage would not be significant (Tr. 888-90).

12. (Reinstated I.D. Finding of Fact 10)

After the slurry wall has been installed, the groundwater "captured" within the excavation will be removed by pumping with sump pumps. The lowest depth to which that water will be pumped is elevation –4 feet, the same level as previously contemplated with well-point dewatering. The sump pumps will also be utilized to remove any casual water which may enter the excavation and limited seepage which may occur through the slurry wall or the bottom of the excavation (Tr. 423-28).

13. (New)

In the event a leak should develop in the slurry wall, it will be possible to determine the general area of the leak by observing where water is entering the excavation (Tr. 856-57, 1030, 1035, 1415). Such a leak can be repaired either by repeating installation of a slurry wall with the vibrated beam in the area where the leak exists or by drilling into the wall in that area and pumping slurry into the hole (Tr. 1032-33, 1179-80).

14. (Reinstated I.D. Finding of Fact 11, with additional references)

Approximately 50 borings have been made on the Bailly site. Although these borings were made well in advance of any plan to install the slurry wall and, consequently, do not coincide precisely with it, 24 were within or adjacent to the area to be enclosed by the slurry wall. These borings are extensive enough to provide adequate knowledge of the site, the underlying soils, and the clay layer (Applicant Ex. IB and Figures 2.5-2.1 through 2.5-2.20, Applicant Ex. 6 in basic licensing proceeding; Permittee Ex. SW-2; Tr. 312-15, 317, 404-18, 462-63, 507-08, 700-01, 1039-40, 1184-85, 1198-1200). The Board finds that the Bailly site has suitable underlying soil structure for slurry wall installation.

15. (Reinstated I.D. Finding of Fact 12, with additional references)

The borings which have been done indicate that an impervious clay layer underlies the entire area to be enclosed by the slurry wall. However, at the south end of the excavation the layer thins. Should it turn out that no clay layer is encountered at the south end, the vibrated beam would be inserted as deep as its physical dimensions permit. This would provide at least a partial water barrier because of the lengthened path of flow (Tr. 499-501, 1006-08, 1416). The possibility exists that seepage may occur under the wall or through the clay in that portion of the excavation. Because of this, the Permittee intends to install a cutoff slurry wall running east-west across the excavation dividing it into northern two-thirds and southern one-third segments. The cutoff wall will be reduced in height as the excavation is deepened. It will still, however, aid in keeping the northern segment of the excavation dry in the event of leakage in the southern segment (Permittee Testimony, Attachment A, p. II; Tr. 419-20, 472-76, 1041-42, 1128-29, 1180-81).

16. (Revised I.D. Finding of Fact 13, in part)

Experience in the use of slurry walls as water barriers has been favorable. The slurry wall technique has been used effectively in Europe for approximately 15 years (Permittee Testimony, Attachment A, p. I) and witnesses from the Holzmann Company testified to personal knowledge of various construction projects in Europe where slurry walls have been successfully installed (Tr. 386-94, 1180).

17. (New)

Two tests using slurry walls have recently been carried out by the Permittee at its Schaffer Generating Station. The slurry walls in these tests were installed by the same contractor who is to install the slurry wall at Bailly and the same vibrating beam technique was employed, using the same type of equipment to be used at Bailly and a similar slurry mixture. Also, the sands at Schaffer are similar to those underlying the Bailly site. The tests were performed by installing

12′ x 12′ test cells enclosed by slurry walls. Groundwater within the cell was pumped out and allowed to recover while monitoring was conducted with piezometers within and outside the cell. On the first test, calculations indicated that the permeability of the walls to water was considerably greater than had been anticipated. Therefore, a second cell was installed. On the second test, calculations showed that, after 60 hours of recharge, the permeability of its walls was substantially less than that resulting in the first test (Tr. 1187-91, 1220-23). The high permeability in the first cell was caused by electrical and mechanical difficulties and the need for readjustments in the composition of the slurry mixture. Because of the limited size of the cell, substantial portions of the slurry wall in the first test were installed using the wrong slurry mixture before the difficulties were discovered and corrected (Tr. 1187-88, 1202-04, 1230-31, 1233-35, 1250). The permeability of the wall in the second cell was calculated to be 4×10^{-7} cm/sec, which is four times larger than had been anticipated from laboratory tests. If one assumes that the wall permeability at Bailly will also be 4×10^{-7} cm/sec and the wall thickness the same as at the test cell, the leakage through the Bailly wall into the excavation would be 25 gallons per minute rather than 3 gallons per minute (Tr. 1187-91, 1194-95, 1233-44). Although the seepage is greater than initially anticipated, a slurry wall of such permeability would still provide a substantial barrier to the flow of groundwater at the Bailly site.

18. (New)

The Board has considered the possibility of sand boils occurring near the south end of the slurry wall, as such sand boils could reduce the wall's effectiveness (Tr. 1360, 1469-74). Considering the entire evidence on sand boils, the Board finds that it is highly unlikely that sand boils will occur.[7] Also, in the event that sand boils did develop, there would be visual indications in the excavation (Tr. 1495, 1504-05), and filters or local dewatering would be used to correct the situation (Tr. 1403-05, 1421-23). Therefore, the Board has concluded that sand boils, if they do form, will not substantially reduce the effectiveness of the slurry wall.

19. (Reinstated I.D. Finding of Fact 13, in part)

Considering the slurry wall proposal as described on the record, the Board finds that there is a very high likelihood that the slurry wall will be as successful as predicted; that is, that it will keep the excavation dry, with only minor water seepage, which will be removed by local sump pumps in the excavation. Even if the wall is not as successful as anticipated, the Board finds that there is even a

[7]See the detailed discussion on the formation of sand boils in Section B of the Supporting Opinion, *infra*.

higher likelihood that the slurry wall will be at least substantially effective as a water barrier. The Board finds, therefore, that construction of the slurry wall will virtually eliminate or substantially reduce the need for any dewatering by well points.

B. Effects on Monitoring

20. (Reinstated I.D. Finding of Fact 14)

When the Permittee discussed its proposal to construct a slurry wall with the Staff, the Staff requested the Permittee to identify a criterion for the success or failure of the slurry wall. The Permittee chose 450 gpm as an upper limit on the amount of seepage that could come into the excavation, this being the amount of seepage that could be handled with relative ease by the two sump pumps (Tr. 431-34). The Permittee amended this position at the hearing, indicating that, if the seepage exceeds 450 gpm, it would evaluate the situation at the time to determine what measures to take. The Permittee stated that, in the event of substantial seepage, it could use either additional sump pumps or well points, or both, with the slurry wall still a partial water barrier (Tr. 430-38, 483-86).

21. (Reinstated I.D. Finding of Fact 15, with additional references)

The Staff in requesting a criterion had done so to secure a decision point; that is, a point at which the Permittee might change its pumping system to eliminate substantial seepage into the excavation. The reason for this criterion is the Staff's concern that, if there is a change from sump pumps to well points, the well points might not be uniformly distributed. If the well points were concentrated in certain locations, this could have an adverse impact on the effectiveness of the monitoring program and require that the monitoring program be reevaluated (Tr. 535-38). The Staff, however, indicated its actual concern was not to fix a specific number of gpm as an action point but to be notified in advance of any change by the Permittee to well points for dewatering (Tr. 555-62, 948-49, 962-68, 976). The Board finds that an absolute figure or criterion for changing to well points is unnecessary.

22. (Reinstated I.D. Finding of Fact 16, with additional references)

The Permittee has made a commitment to a program for monitoring groundwater levels during construction and to the mitigation of any off-site effects (Tr. 439-40). As part of the existing monitoring program there are four observation wells east of the excavation and a fifth monitoring well in the vicinity of the cooling tower. Further, the Permittee has made a commitment to install two additional observation wells on the site to ascertain any effects on the

groundwater table beyond the outer boundary of the slurry wall (Permittee Testimony, Attachment A, p. V; Tr. 428-30, 859-60, 891-92).[8]

23. (Reinstated I.D. Finding of Fact 17)

In view of the importance of maintaining the effectiveness of the monitoring program, the Board finds that the Permittee should advise the Staff in advance of any changes in the dewatering operation necessitated by substantial water seepage into the excavation. The Board, therefore, finds it warranted to require that, in the event water leakage into the excavation would be so large as to necessitate the use of well points, the Permittee shall notify the Staff in advance of any such change. Further, the Board finds it warranted to require the Staff, upon notification, to take appropriate action to determine the effectiveness of the monitoring program, to revise the monitoring program, if necessary, and to require remedial action, if appropriate.[9]

C. Specific Environmental Effects

24. (Reinstated I.D. Finding of Fact 18)

Traffic The prepared bentonite is to be transported to the site via closed railroad cars. The total prepared bentonite shipment will amount to only four rail cars (Permittee Testimony, p. 2). The cement to be used in the slurry mixture is to be delivered by truck. Approximately 250 tons of cement is required and the Permittee estimated that that amount represented 11 truck loads (Tr. 488). The transportation of the prepared bentonite and the cement to the site will not significantly affect local rail or vehicular traffic (Tr. 567-68) and will have a negligible environmental effect.

25. (Reinstated I.D. Finding of Fact 19)

Dusting of Spillage The prepared bentonite and the cement will be transported to the site in closed vehicles and pneumatically conveyed into closed silos where it is stored until transferred to the mixing plant and then to the injection pipe located on the steel I-beam through which pipe the slurry mixture will be injected into the ground. The closed containers and the pneumatic conveying system negate the likelihood of any dusting or spillage.

26. (Reinstated I.D. Finding of Fact 20)

Noise The noise associated with the vibrator for the steel I-beam is far less than the noise associated with piledriving through the use of hammers. It is

[8] We note also that, at the request of the National Park Service, the U.S. Geological Survey has installed two observation wells on NIPSCO property (Tr. 1065, 1077-80).

[9] These requirements are set out in the Conditions section, *infra*.

comparable to the sound of a big noisy motor bike (Tr. 480). Such an amount of noise would be a small increment to the level of noise at a construction site (Tr. 566-67). In view of this, the noise associated with the vibrator will have only a negligible environmental effect.

27. (Reinstated I.D. Finding of Fact 21)

Migration of Slurry The groundwater velocity of less than ten feet per day (Tr. 394-95), the viscosity of the slurry and its interaction with the soil, and the short time in which the slurry becomes fully gelled make the possibility of migration beyond the immediate area of the wall very remote (Permittee Testimony, Attachment A, p. IV; Staff Testimony, p. 4; Tr. 395-97, 476-77, 544-48, 568-70). There will be virtually no interaction between the slurry and the groundwater while the slurry is gelling. Groundwater in contact with the outer boundary of the slurry would dissolve out very low levels of sodium and calcium, thereby increasing minutely the total dissolved solids in the groundwater (Tr. 264-66).

28. (Reinstated I.D. Finding of Fact 22)

Leaching of the Wetting Agent, Polyacrylic Acid A small amount of the wetting agent additive, polyacrylic acid, will be uniformly distributed throughout the 70 tons of bentonite. When water is added, the polyacrylic acid dissolves and reacts with free sodium ions in the bentonite to form a neutral salt. In performing its function as a wetting agent, polyacrylic acid causes colloid formation in the bentonite-water mixture in minutes. There may be some reaction with cement constituents with any free acid that has escaped neutralization, but this will form water-insoluble compounds. There will be very little, if any, free acid in the slurry wall and the possibility of having undissolved acid injected into the ground is therefore remote (Tr. 240-53, 261, 263-64, 270, 549, 564-66).

29. (Reinstated I.D. Finding of Fact 23)

Vibrations The use of vibratory equipment will result in vibrations that can be felt in the earth only within 20 to 25 feet and there will be a compaction effect within only 2 to 3 feet from the central line of the I-beam (Tr. 508-10). The possibility of transmission off-site is so remote that it does not warrant further consideration (Tr. 576-77). The Board finds that vibratory effects will be felt only onsite.

30. (Reinstated I.D. Finding of Fact 24)

Molds The record indicates that there is little likelihood of molds being formed as a result of the slurry wall construction (Tr. 581-83).

31. (Reinstated I.D. Finding of Fact 25)

Seismological Significance The nature of shock wave transmission through the earth and the relatively small size of the slurry wall indicate that construction of the slurry wall will not have any seismological significance and does not require further exploration (Tr. 461-62, 572-75).

32. (Reinstated I.D. Finding of Fact 26)

Environmental Effects of Leaving the Slurry Wall in Place The slurry wall will remain in place indefinitely after serving its purpose of maintaining a dry excavation for about two years. The wall will not disintegrate and will remain intact unless artifically removed (Tr. 236, 267-69). No adverse environmental effects were identified in connection with the wall's remaining in place indefinitely.

33. (Reinstated I.D. Finding of Fact 27)

Decommissioning If the method of decommissioning chosen were to leave the facility in place, the slurry wall presence would have no other environmental impact than it had during the lifetime of the facility. If the method of decommissioning chosen involved removal of all the structural material and converting the site back to some other use, the only identifying impact would be that of enlarging the excavation so as to remove the slurry wall. The environmental impact would be insignificant (Tr. 577-78).

34. (Reinstated I.D. Finding of Fact 28)

Perturbation in the Groundwater Flow Since the slurry wall is larger than the building complex, there will be a slight modification of the local perturbation in the groundwater flow around the perimeter of the facility. It is not expected to result in any off-site effect in view of the wide extent of the total groundwater flow (Tr. 489-90, 543-44, 939, 945-47).

35. (Reinstated I.D. Finding of Fact 29)

Removal of Cutoff Wall The east-west cutoff slurry wall will be removed as construction proceeds. Although plans for disposal of this debris are not definite, it may be used with other excavation spoils in the dikes of the existing ash ponds on-site (Tr. 463-64, 584-85). No adverse environmental impact was identified from such use.

36. (Reinstated I.D. Finding of Fact 30)

Radioactive Releases The slurry wall would aid in preventing off-site migration of any accidental release of radioactive liquid into the groundwater should such occur during operation of the facility.

37. (Reinstated I.D. Finding of Fact 31)

Elimination of Dewatering The slurry wall, if successful, will eliminate the need for extensive pumping of water out of the ground through the well-point system of dewatering. The Board considers that the chances of the wall being either totally or largely successful are high. The Board finds that there is an environmental benefit from reducing or eliminating the need for dewatering since the slurry wall provides a further protection against the remote possibility of adverse effects off-site from site dewatering.

D. Cost-Benefit Evaluation

38. (Reinstated I.D. Finding of Fact 32)

The Board finds that the economic cost of the construction of the slurry wall will be approximately $431,500 (Tr. 291). There will be no maintenance cost and any repairs will be at the expense of the contractor (Tr. 447). To this must be added the cost of having a sump pump operator on duty which will involve approximately $1,325 per month. The Permittee estimates that dewatering will be necessary for a period of approximately 20 months, so the sump pump operator cost will amount to $26,500, making the total cost of the slurry wall proposal approximately $458,000 (Tr. 447). The cost of the slurry wall proposal is comparable to the cost of the well-point dewatering system originally proposed to be used by the Permittee. Installation of the well-point system would cost $75,000 with operating costs estimated at $18,600 per month. For the 20-month period there would be a total cost of about $447,000 for the well-point dewatering system. If the dewatering takes less than 20 months, there is an economic advantage in using the well-point system, but if the dewatering is greater than 20 months, the economic advantage is with the slurry wall proposal.

39. (Reinstated I.D. Finding of Fact 33)

Considering all the factors set out in the previous findings of fact, the Board makes the following evaluation of the slurry wall proposal from an environmental standpoint. The Board finds that the adverse environmental impacts of construction of the slurry wall are negligible and will not be felt off-site. Further, the Board can identify no adverse environmental impact associated with the slurry wall's remaining in place indefinitely after construction of the Bailly facility has been concluded. On the benefit side, if the proposed slurry wall is successful, it will substantially reduce or eliminate the need for dewatering during construction, thereby providing additional protection from the possibility, although a remote possibility, of adverse environmental impact off-site, particularly on the Indiana Dunes National Lakeshore, from dewatering during

construction (Permittee Testimony, Attachment A, p. IV; Staff Testimony, p. 2; Tr. 596). The Board has found that the likelihood of success of the slurry wall is high and therefore the additional environmental protection will probably be achieved. From a cost standpoint, the Board considers that the slurry wall cost is insignificant when the cost of the project as a whole is considered. Considering all factors, the Board finds that the use of the slurry wall construction technique is acceptable and that the construction of the slurry wall will be beneficial from an environmental standpoint.

40. (Reinstated I.D. Finding of Fact 34, with additional footnote)

The Board has also considered the ramifications of the slurry wall being unsuccessful. In that event, there would be an economic detriment to the Permittee, but again this would not be significant when the cost of the entire project is considered. While the ineffective slurry wall would remain in place on the Permittee's property, this also would be insignificant since there are no identifiable adverse environmental impacts of the wall remaining in place.[10] Also, the construction effects are negligible, so no real environmental detriment would occur even if the wall failed totally. The Board considers the risk of failure to be acceptable from an environmental standpoint when weighed against the potential for added environmental protection represented by the slurry wall proposal. In addition, if the wall is unsuccessful, the Permittee will revert either totally or in part to the well-point dewatering system which was previously considered at length and approved after having been found to be environmentally acceptable by the prior Licensing Board and the Appeal Board (*Bailly Initial Decision*; RAI-74-4, 557 at 589-591; ALAB 224, RAI-74-8, 244 at 258-260, 273-274).

41. (Reinstated I.D. Finding of Fact 35)

Overall, the Board concludes that the potential environmental benefit from the slurry wall construction substantially outweighs the negligible adverse impacts associated with the slurry wall proposal. The Board finds, therefore, that the appropriate action to be taken in this proceeding is to approve the slurry wall proposal and authorize its use by the Permittee.

42. (Reinstated I.D. Finding of Fact 36)

In addition, the Board has considered the effect its approval of the slurry wall construction has on the cost-benefit evaluation made in the basic licensing

[10] There was a suggestion that a situation could occur after installation of the slurry wall where greater dewatering would be needed than if the wall had not been installed. The Board considers this postulated situation too remote to be considered as a possible environmental effect. See the detailed discussion on this in Section B of the Supporting Opinion, *infra*.

proceeding. The Board concludes that the slurry wall, if successful either totally or partially, provides further support in the cost-benefit evaluation in favor of the construction permit. On the other hand, if the wall is unsuccessful, the negligible adverse impact resulting from its construction and remaining in place would not affect the cost-benefit balance to such an extent that construction of the project should be rejected. The Board finds that the benefits from construction of the Bailly facility would still outweigh the costs, even if the slurry wall were installed and were totally unsuccessful.

III. CONCLUSIONS OF LAW

1. (Reinstated I.D. Conclusion of Law 1)

The Board's authority in this proceeding is based on the Commission's Memorandum and Order of October 3, 1974, directing that a hearing be held on the environmental effects of construction of the slurry wall.

2. (Reinstated I.D. Conclusion of Law 2)

The Commission's Memorandum and Order of October 3, 1974, by necessary implication vests in this Board the power to approve or reject the slurry wall proposal based upon the Board's evaluation of the environmental effects of that proposal. The Board, therefore, has the authority to grant or deny permission to the Permittee to construct the proposed slurry wall.

3. (Reinstated I.D. Conclusion of Law 3)

The Commission's Memorandum and Order of October 3, 1974, directing that a hearing be held on the slurry wall proposal, is based upon the agency's statutory responsibilities under the National Environmental Policy Act of 1969 (NEPA) 42 USC 4321 *et seq.*

4. (Reinstated I.D. Conclusion of Law 4)

As this proceeding is based upon the Commission's NEPA responsibilities, this Board must consider whether any action authorized as a result of this proceeding will affect the cost-benefit evaluation previously made in the basic licensing proceeding.

5. (Reinstated I.D. Conclusion of Law 5)

Assessing the effect of any action permitted in this proceeding on the prior cost-benefit evaluation does not involve reopening of the other elements of that cost-benefit evaluation for litigation.

IV. SUPPORTING OPINION

In this portion of the Initial Decision, the Board will provide a memorandum opinion to discuss and support certain of its findings of fact, conclusions of law, and other rulings made in this proceeding.

A. Proposed Findings of Fact and Conclusions of Law

Any proposed finding of fact or conclusion of law submitted by the parties hereto or by the State of Illinois, which finding or conclusion is not incorporated directly or inferentially into this Supplemental Initial Decision, is herewith rejected as being unsupportable in law or fact, or as being unnecessary to the rendering of this Supplemental Initial Decision.

B. The Position of the State of Illinois and the Joint-Intervenors

The State of Illinois in its proposed findings of fact and conclusions of law took the position that inadequate evidence had been introduced to determine (1) whether and to what extent the slurry wall will be effective; and (2) whether and to what extent there will be adverse environmental effects from installation of the slurry wall. Since the Joint-Intervenors adopted the proposed findings of the State of Illinois, the Board will deal with both as a unified position. We will refer to the unified position herein as that of Illinois.

Basically, Illinois attacked both the adequacy of the information gathered on hydrology and geology at the Bailly site, and the methods employed by the Permittee to secure that information. The Board has carefully considered the testimony of the Illinois witnesses and their proposed findings, but has concluded that the argument that the record is inadequate is not persuasive.[11] Generally, Illinois' contention of inadequacy was that better information should be obtained or that better methods should have been used. It should be noted that the thrust of the Illinois testimony was not that the Permittee's evidence was inaccurate. The Illinois attack, therefore, did not go to the merits of the hydrological and geological information relied upon by the Permittee. In considering the Illinois position, the Board will first deal with the effectiveness of the slurry wall, then with the environmental effects, and lastly with the adequacy of the monitoring.

[11] The Board will not set out as detailed an analysis of the Illinois evidence as is contained in the Permittee's and the Staff's proposed findings. However, the Board specifically notes that substantial portions of those analyses are valid.

1. Effectiveness of the Slurry Wall

Several of the principal concerns of Illinois related to the basement clay layer into which the slurry wall is to be driven. Borings carried out over a number of years indicate that the clay layer appears to underlie the entire area to be enclosed by the slurry wall. Illinois witnesses suggested that additional information should be obtained in order to determine the permeability of this clay layer beneath the slurry wall. However, witnesses for both the Permittee and Joint-Intervenors testified that only small or insignificant quantities of water would pass through the clay layer (Tr. 1128, 1223). In addition, an Illinois witness agreed that clay has a very low permeability (Tr. 1279-80). The Board feels the testing of the opinions of these witnesses through additional measurements would not be particularly useful since no witness suggested that permeability of the clay layer was such that it would allow large quantities to seep into the excavation.

At the south end of the excavation the layer thins (Permittee Exhibit IB and Figures 2.5-2.1 through 2.5-2.20, Exhibit 6 in basic licensing proceeding; Exhibit SW-2; Tr. 312-15, 317, 404-18, 462-63, 507-08, 700-01, 1039-40, 1184-85, 1198-1200). Although the borings reveal the existence of a clay layer in the excavation area and its presence 230 feet to the south, a witness for Illinois expressed doubt about the intervening area (Exhibit SW-2; Tr. 1401-03) and alleged that if the clay layer did disappear in the region of the slurry wall, there would be no base into which to tie the wall and groundwater would seep around the bottom of the wall and seriously compromise its usefulness. Testimony by the Permittee's witness indicated that in the event that no clay layer were encountered, the vibrated beam would be inserted as deep as its physical dimensions permit. This alone would provide a water barrier because of the lengthened path of flow (Tr. 499-501, 1006-08, 1416). Also, the Permittee intends to install a cutoff slurry wall running east-west across the excavation dividing it into northern two-thirds and southern one-third segments. While this cutoff wall will be reduced in height as the excavation is deepened, it will nonetheless aid in keeping the northern segment of the excavation dry in the event of leakage in the southern segment (Permittee Testimony, Attachment A, p. II; Tr. 419-20, 472-76, 1041-42, 1128-29, 1180-81). In the Board's view, there is sufficient information concerning the underlying soil structure at the Bailly site to indicate that there is a high likelihood that the slurry wall will be at least partially effective and that information obtained from additional borings at the south end of the excavation would not be of significant help in the decision whether to approve the slurry wall.

The thinning and the potential disappearance of the basement clay layer raised another concern on the part of Illinois, namely the possibility of the development of sand boils. At the hearing there was some ambiguity as to the mechanism by which boils might develop and as to whether the conditions

necessary for the formation of the sand boils would exist at the Bailly site. One Illinois witness stated that, in the absence of a clay layer beneath the slurry wall, the differential head caused by the wall could occasion flow underneath the wall, and might result in the development of a sand boil (Tr. 1420). In answer to questions, another Illinois witness stated it was not likely that sand boils would develop by that mechanism. He concluded that, if the slurry wall were to be installed and the clay layer was nonexistent, there would be no sand boils (Tr. 1506-07). Again, in answer to questions put to him by the Board he stated the opinion that an artesian pressure on the aquifer under the clay layer is a prerequisite to the formation of a sand boil (Tr. 1479, 1509-10). He stated that artesian aquifers might exist below the clay layer at the Bailly site but claimed he did not have sufficient information to determine whether in fact they do exist (Tr. 1511-12). However, in the Board's opinion, the evidence was sufficient to conclude that artesian pressures do not exist at the Bailly site since the water level data shown on the boring logs do not reveal any artesian pressure (Tr. 1485, 1512, also PSAR Sec. 2.4.22 and Table 2.4-7; Tr. 1480-83, 1512). Assessing all the evidence on sand boils, the Board considers it unlikely that sand boils would occur at the Bailly site.

The remote possibility was raised by one Illinois witness that sand boils might propagate, which could lead to a condition where the sand underlying the basement clay layer might be eroded away, causing voids and eventually the breakup of the clay layer. Conceivably, it was postulated, this could produce a deteriorating situation which would require more dewatering than would have been necessary had the slurry wall not been built in the first place. This would come about if there were artesian pressure in the aquifer below the clay layer causing a differential in pressure. If this were coupled with a total failure of the slurry wall and a breakup of the clay layer from sand boils, theoretically this could require more dewatering than if the slurry wall had not been installed. The greater dewatering would result from having to pump water out of the aquifer above the clay layer as well as having to pump out water forced up from the lower aquifer by the artesian pressure. However, the Board feels that this is too unlikely a situation to be considered as a possible adverse environmental effect of slurry wall construction. First, the evidence suggests there is no artesian pressure in the aquifer below the clay layer. Secondly, sand boils are readily noticeable and it is inconceivable that the Permittee would not take corrective action in sufficient time to prevent a breakup of the clay layer. Thirdly, the possibility of the sand boils only exists at the south end of the slurry wall and the overall thickness of the other portions of the clay layer strongly mitigates against its breaking up in such substantial amounts that would be necessary for the postulated situation requiring greater dewatering. Lastly, the very witness who suggested this possibility frankly admitted that in his expert opinion the slurry wall could not totally fail, a necessary prerequisite for the hypothetical greater dewatering situation.

Another area of uncertainty raised by the State of Illinois witnesses concerned the life expectancy of the wall. It was postulated that the calcium ions in the groundwater will exchange with sodium ions of the bentonite in the wall over a period of time resulting in "syneresis," an expulsion of water from the clay gel causing a cracking of the gel (Tr. 1330). This theoretically could lead to an increase in the permeability of the wall and its deterioration with time (Tr. 1332, 1361). The implication was that the wall might deteriorate within the time period it was needed, i.e., two years. Although the phenomenon was demonstrated in the laboratory, the weight of experience relating to installed slurry walls in Europe does not bear out the likelihood of wall failure in two years (Tr. 1388, 1390-91, 1393). Moreover, the same witness testified that bentonite slurry water barriers installed in ponds in Illinois were still functioning very well after four years. The presence of an immensely greater calcium ion concentration due to the cement in the slurry wall mixture than is found in water and the maintenance of the integrity of bentonite cement slurry walls overy many years also weigh against the meaningfulness of "syneresis" as a cause of wall failure (Tr. 1394-95).

Also, questions were raised on the continuity of the slurry wall since obviously this is a factor in determining the effectiveness of the slurry wall as a water barrier. Although the sections of the wall are overlapped by 4" at the top of the wall and the vertical alignment is carefully controlled (see references in Finding of Fact 7, *supra*), the problem of assuring the overlap at the bottom of the wall, thirty feet below the surface, is one that must be considered. This problem became of greater concern when it was learned that the slurry wall may be only 3" thick rather than 18" as was originally anticipated. A Permittee witness, in answer to Board questions (Tr. 1232-33), pointed out that, in addition to maintaining vertical alignment to an accuracy of one-half percent, the beam tends to follow the path of least resistance and hence will follow the hole made by the previous insertion, thereby assuring continuity with the previous section down to the clay layer. In addition, the beam flanges are 12" wide so that a misalignment of about 6" could be tolerated before there would be a crack between sections (Tr. 1232-33). On the basis of this testimony the Board concluded that there is a high probability that the wall would be continuous.

2. Environmental Effects of the Slurry Wall

Illinois also contends that, from the evidence presented at the hearing, a reasonable determination cannot be made on the environmental effects of the slurry wall. As in their argument on the effectiveness of the slurry wall, Illinois claims that the hydrological and geological studies performed at the site are not sufficient for this purpose. However, Illinois does not identify any specific environmental effect of the slurry wall which the Board has not assessed. The

Board in its Findings of Fact has enumerated 14 specific environmental effects which it considers as possibly relating to the slurry wall. In the Board's view, the evidence presented at the hearing provides an adequate basis for the evaluation of those specific environmental effects. It should be noted that Illinois does not attack the analysis made of these specific environmental effects on the merits.

Reviewing the entire record, the Board considers that it contains adequate information for a reasonable evaluation of the environmental effects of the slurry wall.

3. Effects on Monitoring

Witnesses appearing for Illinois also criticized what they referred to as the "monitoring system" as being incomplete or inadequate (Tr. 1266, 1356). The witnesses' criticisms were mainly recommendations for additional monitoring wells to determine with precision the effectiveness of the slurry wall (Tr. 1266, 1299, 1352, 1356). In the Board's opinion, it is unnecessary to determine the wall's effectiveness with such precision since the amount of water which collects in the excavation is a reasonable measure of wall effectiveness, even though this in part is casual water (Tr. 1300). The Board has concluded that there is no need to augment monitoring to determine the slurry wall's effectiveness.

C. The Marie Testimony

The sole witness presented by the Joint-Intervenors was Mr. James R. Marie, a hydrologist with the U. S. Department of the Interior, Geological Survey. The Joint-Intervenors attempted to elicit testimony from Mr. Marie that would show the amount of drawdown at Pond A in the Indiana Dunes National Lakeshore and at the site boundary that would be occasioned by well-point dewatering to the –4 foot level (see Offer of Proof, Tr. 1130-31).[12] Objections were made to this proposed testimony by the Permittee and the Staff on the basis that it constituted a relitigation of the potential drawdown that might be occasioned by well-point dewatering of the site.

The Board sustained the objections to Joint-Intervenors' offer of proof and excluded the proffered testimony by Mr. Marie.[13] In the Board's view, the

[12] The offer of proof related to a shift in dewatering in the event of either total or partial failure of the slurry wall, where the dewatering would then be accomplished totally by well points. A review of the transcript indicates that the point relied upon by the Joint-Intervenors in either case is the shift to well-point dewatering (Tr. 1130-31, 1163-64).

[13] The Board, of course, has not attempted to evaluate the proffered testimony on the merits since it only has before it an offer of proof. However, the Board should note that the figures in the offer of proof do not appear to be greatly different from the drawdown figures given in the basic licensing proceeding, although there is some variation. This, however, was not the basis for the Board's exclusion of the testimony.

impact of total well-point dewatering is not an environmental effect of the slurry wall and is, therefore, outside the ambit of this particular reopened proceeding. Further, the Board agrees with the Permittee and the Staff that admission of the Marie testimony would have opened the issue of well-point dewatering for relitigation. This the Board does not have the authority to do.[14] The environmental effects of the drawdown from well-point dewatering and remedial actions available were thoroughly litigated in the basic licensing proceeding and this Board is bound by those determinations. In the event of total or partial failure of the slurry wall resulting in a reversion to well-point dewatering, the Permittee will be in the same position as if there were no wall and the resolution of the well-point dewatering issue in the basic licensing proceeding will still obtain.

It should also be mentioned with regard to dewatering that the major consideration is the effectiveness of the slurry wall since that will necessarily determine how much the need for dewatering is lessened. In this regard, Mr. Marie testified that he had not done any analysis on partial effectiveness of the slurry wall (Tr. 1155). He further stated that he did not have any opinion regarding the environmental effects of the slurry wall (Tr. 1136-37).

Later in the hearing, the Joint-Intervenors moved that the Board reconsider its ruling excluding the Marie testimony (Tr. 1440-41). This motion was again opposed by the Permittee and the Staff. Basically, the request for reconsideration related to testimony that local well-point dewatering might be utilized to prevent sand boils. It was apparent, however, from the testimony on sand boils that any local well-point dewatering to eliminate sand boils would involve substantially less than full well-point dewatering to keep the excavation site dry. Additionally, the offer of proof did not connect the Marie testimony to local well-point dewatering to remedy sand boils. The Board does not consider that the testimony on sand boils forms a nexus making the proffered Marie testimony relevant to the environmental effects of the slurry wall.

Overall, considering Mr. Marie's other testimony, the Joint-Intervenors' offer of proof and the oral arguments relating thereto, the Board concludes that the proffered testimony from Mr. Marie would not relate to the environmental effects of the slurry wall and therefore was properly excluded at the hearing. To have accepted the testimony would have constituted a reopening of the well-point dewatering issue, an action that this Board is without authority to take. The mandate to this Board in the Commission's Memorandum and Order of October 3, 1974 is to determine the environmental effects of the slurry wall

[14] The Board makes no attempt to pass on whether the proffered testimony would be sufficient to form the basis for a motion to the Commission or to the Seventh Circuit to reopen the basic licensing proceeding for relitigation of the dewatering issue. It is sufficient to note that such courses of action are open to the Joint-Intervenors if they choose to pursue them.

and relitigation of well-point dewatering is outside the scope of the reopened proceeding on the slurry wall.

D. Discovery

Prior to the commencement of evidentiary hearings, the Joint-Intervenors submitted interrogatories to the Permittee and the Staff and also scheduled the depositions of two of the Permittee's employees. In addition, the Joint-Intervenors served the Permittee with a request for production of documents. Also, the State of Illinois served interrogatories on the Permittee, on the Staff and on the Joint-Intervenors.

The Permittee objected to the discovery requests and filed motions for protective orders. The basis for the Permittee's motions was that the Commission Memorandum and Order of October 3, 1974 specifically stated that the Staff and the Permittee shall make available to the intervenors all relevant documents which are not privileged, but that there should be no additional discovery. In view of this specific ruling on discovery by the Commission, the Board sustained the Permittee's objections, and granted the motions for protective orders which it interpreted as motions to strike the discovery requests (Board Order issued October 25, 1974, and Memorandum issued October 29, 1974; Tr. 7-9).

The Joint-Intervenors and the State of Illinois argued that the limitation on discovery constituted a denial of procedural due process. However, as directed by the Commission, the Permittee and the Staff did supply all relevant documents on the slurry wall. Further, the Permittee and the Staff voluntarily responded to the interrogatories submitted by the Joint-Intervenors and the State of Illinois. The Board noted that, while these answers to interrogatories were received only shortly before or at the beginning of the evidentiary hearing, an analysis of their contents did not reveal that there was any significant new information. Nor was any request made to reopen the hearing on the basis of information contained in the answers to these interrogatories.

Further, the Seventh Circuit in permitting the Commission to reopen the proceeding did not alter the Commission's limitation on discovery, even though counsel for the intervenors had taken the position before the Seventh Circuit that they would not oppose reopening of the agency proceeding on condition that discovery be permitted.[15] In any event, not only was the Board bound by the Commission's limitation on discovery[16] but it should also be pointed out

[15] This position taken by the Joint-Intervenors was disclosed to the Board during the October 25, 1974, telephone conference on the Joint-Intervenors' motion to continue the hearing.

[16] Since the presiding officer in a Commission proceeding has the power to limit discovery under 10 CFR 2.740(b), obviously the Commission itself can limit discovery.

that parties to judicial or quasi-judicial proceedings are not entitled to discovery as a matter of right. *NLRB* v.*Interborough Contractors, Inc.*, 432 F2d 854, 857-8 (2nd Cir. 1970), Cert. denied 402 U.S. 915; *NLRB* v. *Vapor Blast Mfg. Co.*, 287 F2d 402, 407 (7th Cir. 1961), Cert. denied 368 U.S. 823; *Starr* v. *Commissioner of Internal Revenue*, 226 F2d 721, 722 (7th Cir. 1955), Cert. denied 350 U.S. 993. In the Board's view, the position on discovery taken by the Joint-Intervenors and the State of Illinois had to be rejected.

The Board's rulings on these discovery matters have been considered and affirmed by the Appeal Board (ALAB-249, RAI-74-12, 980, 987).

Also, Illinois filed a second set of interrogatories and request for production of documents dated December 26, 1974, which was voluntarily complied with by the Permittee. No additional questions of discovery were presented for determination in connection with this additional discovery.

E. NEPA Analysis

At the close of the hearing on November 7, 1974, the Board requested briefs from the parties on the NEPA responsibilities of the Staff and the Board and on the authority under which this proceeding is being held. These issues relate in part to the Joint-Intervenors' oral motion at the hearing to reopen the cost-benefit balance in the basic licensing proceeding, which the Board had taken under advisement (Tr. 65-81, 603-35). The Board has considered the briefs filed and its analysis of the NEPA responsibilities follows.

Since the issue specified for hearing is the environmental effects of the slurry wall, the authority under which this proceeding is being held must be the statutory responsibilities set out for the agency under the National Environmental Policy Act of 1969 (NEPA), 42 USC 4321 *et seq.*

The fact that NEPA is the underlying authority must be considered in relation to the action ordered taken in the slurry wall hearing. Specifically, the Commission's Memorandum and Order of October 3, 1974, and the Seventh Circuit's Order of October 16, 1974, indicate that this is not a separate proceeding but is a reopening of the basic licensing proceeding for the limited purpose of determining the environmental impact of the slurry wall. The Commission did not order nor did the Seventh Circuit authorize the reopening of the record for any other purpose.[17] This Board, therefore, does not have the authority or responsibility to reopen the cost-benefit balance for relitigation. Therefore, to the extent that the Joint-Intervenors' motion sought to reopen the items of the cost-benefit balance for relitigation, it was denied. The Board's

[17] When the Petition for Review was filed with the Seventh Circuit on September 13, 1974, that Court obtained exclusive jurisdiction under 28 USC 2343 and consequently neither this Board nor, in fact, the Commission can reopen the basic licensing proceeding except as permitted by the Seventh Circuit.

ruling on this aspect of the proceeding was reviewed and affirmed by the Appeal Board (ALAB-249, RAI-74-12, 980, 987).

The above ruling, however, does not settle the entire issue of NEPA responsibility. In the Board's view, there is an implicit authority and obligation on it to approve or reject the slurry wall proposal after it has determined its environmental impact. Further, if approval is given (as the Board did),[18] it appears warranted for the Board, in fulfilling its NEPA duties, to determine how its decision affects the cost-benefit balance. A determination of the effect of slurry wall construction on the cost-benefit balance would not, in the Board's opinion, necessitate reopening the record and relitigating the items in the cost-benefit balance. It does, however, entail evaluations of the effect on that balance if the wall is successful or if it is unsuccessful. The Board has performed these evaluations in this Supplemental Initial Decision (see Finding of Fact No. 36).

A collateral issue is the NEPA responsibilities of the Staff in this proceeding. The Staff in its brief stated that it should review and independently evaluate the data submitted by the Permittee, and then identify and assess potential environmental effects associated with construction of the slurry wall (Staff Brief, p. 4). The Board concurs with the Staff's position. However, insofar as the Staff evaluation is in conflict with any of the findings, conclusions or rulings in this Supplemental Initial Decision, that evaluation is hereby specifically modified. See 10 CFR 51.52(b)(3).

V. CONDITIONS

The Board has concluded that its approval of construction of the slurry wall at the Bailly facility should be conditioned as follows for protection of the environment:

(1) If the slurry wall does not work as anticipated and the Permittee decides to install well points to dewater the excavation, the Permittee shall notify the Staff in advance of this change.

(2) The Staff upon notification as required in condition (1), above, shall take appropriate action to determine whether there is any effect upon the environmental monitoring program designed to detect and mitigate any possible adverse effects off-site from dewatering, particularly in the area of the Indiana Dunes National Lakeshore. If there is any reduction in the effectiveness of the aforementioned monitoring program, the Staff shall take immediate action to require revision of the monitoring program to insure its effectiveness and to mitigate any possible adverse effects.

[18] It is obvious that had the Board rejected the slurry wall proposal, the cost-benefit balance would not be affected since construction of the slurry wall would not be permitted.

VI. ORDER

Based upon the Board's Findings of Fact, Conclusions of Law and Supporting Opinion contained herein, it is

ORDERED that the Permittee's proposal to construct a slurry wall at the facility be approved and that the appropriate official of the Nuclear Regulatory Commission is authorized to amend the construction permit or take such other action as may be appropriate to permit the Permittee to construct the slurry wall. This permission is, however, subject to the conditions set out in Section V, *supra*, of this Supplemental Initial Decision.[19]

IT IS FURTHER ORDERED, in accordance with 10 CFR Parts 2.760, 2.762, 2.764, 2.785 and 2.786 of the Commission's Rules of Practice, that this decision shall constitute the final decision of the Commission subject to review thereof under the above-cited Rules. Pursuant to Section 2.762, exceptions to this Supplemental Initial Decision must be filed within seven days after service of that decision and a brief in support of the exceptions must be filed within fifteen days thereafter (twenty days in the case of the Staff). Within fifteen days of the filing and service of the brief of the Appellant (twenty days in the case of the Staff), any other party may file a brief in support of, or in opposition to, the exceptions. These last mentioned time limitations are subject to revision by the Atomic Safety and Licensing Appeal Board for good cause shown pursuant to 10 CFR 2.711.

BY ORDER OF THE ATOMIC SAFETY AND LICENSING BOARD

Harry Foreman, Member

Walter H. Jordan, Member

Daniel M. Head, Chairman

Issued at Bethesda, Maryland,
this 21st day of February 1975

[19] Implementation of this authorization is however stayed since the Seventh Circuit on October 16, 1974, specifically ordered construction on the slurry wall stayed pending further order of that Court after the Commission has rendered a final decision in this proceeding.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-4

ATOMIC SAFETY AND LICENSING BOARD

Thomas W. Reilly, Esq., Chairman
Dr. Frederick P. Cowan, Member
Dr. Hugh C. Paxton, Member

In the Matter of

NUCLEAR FUEL SERVICES, INC

and

N. Y. STATE ATOMIC AND SPACE DEVELOPMENT AUTHORITY
(West Valley Reprocessing Plant)

Docket No. 50-201

February 26, 1975

Upon Erie County petition for leave to intervene (both as a party under 10 CFR §2.714 and as an "interested State" under §2.715(c)) in construction permit and operating license proceedings, Licensing Board finds that petitioner does not qualify as an "interested State" and that, although demonstrating a sufficient cognizable interest and at least one valid contention required to attain party status, has not demonstrated: (1) substantial good cause for late filing (over nine months), and (2) a sufficient showing of other factors relevant to untimely intervention petitions.

Petition for intervention denied, without prejudice to the filing of a §2.715(a) limited appearance request.

RULES OF PRACTICE: NONTIMELY INTERVENTION PETITION

A nontimely petition to intervene must be supported by a showing of substantial good cause for the late filing. 10 CFR §2.714(a).

RULES OF PRACTICE: NONTIMELY INTERVENTION PETITION

The existence of "good cause" necessary for nontimely intervention must be determined on the basis of the circumstances in each particular case; prior determinations in different cases are of little precedential value unless there is a close parallel in attendant circumstances. See *Beaver Valley* (ALAB-208), RAI-74-6 959, 967 (1974).

RULES OF PRACTICE: NONTIMELY INTERVENTION PETITION

An inordinate delay by residents in requesting county action will not eliminate applicability of filing deadlines for the county, absent a showing that the county acted expeditiously after receiving the request.

RULES OF PRACTICE: NONTIMELY INTERVENTION PETITION

Relevant factors which must be considered in relation to intervention by a nontimely petitioner include: (1) the availability of other means whereby the petitioner's interest will be protected; (2) the extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record; (3) the extent to which petitioner's interest will be represented by existing parties; and (4) the extent to which petitioner's participation will broaden the issues or delay the proceeding. See 10 CFR §2.714(a).

RULES OF PRACTICE: STANDING TO INTERVENE

A county does not qualify for participation as an "interested State" (see 10 CFR §2.715(c)), since it is a political subdivision of a state geographically limited to representing the people within its boundaries and in no sense may be deemed a representative of all the people in the state.

RULES OF PRACTICE: STANDING TO INTERVENE

A cognizable interest sufficient for intervention may exist in a county whose citizens are directly affected by the operation of a facility located adjacent to such county.

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

A properly admissible intervention petition need specify only one relevant contention with reasonable specificity and some basis assigned for it.

RULES OF PRACTICE: PUBLIC PARTICIPATION

In order to encourage full public participation in Board proceedings, a petitioner who does not qualify for intervention may participate by limited appearance. See 10 CFR §2.715(a).

MEMORANDUM AND ORDER
ON ERIE COUNTY PETITION TO INTERVENE

The Board has before it for consideration a Petition for Leave to Intervene by the County of Erie, Buffalo, New York, filed on January 29,[1] 1975, together with responsive pleadings filed by the NRC Regulatory Staff and the Applicant herein.

On March 20, 1974, the U. S. Atomic Energy Commission (predecessor to the U. S. Nuclear Regulatory Commission insofar as this proceeding is concerned) published in the *Federal Register* (39 *Fed. Reg.* 10471) a Notice of Hearing on Application for a Construction Permit and notice of an opportunity for hearing with respect to the conversion of Provisional Operating License No. CSF-1 to a Full Term Operating License. The notice summarized the procedures for intervening as a party pursuant to §2.714 of the Commission's Rules of Practice, and specified that petitions for leave to intervene "must be filed with the Secretary on or before April 19, 1974."

On or before April 19, 1974, the filing deadline set forth in the Commission's Notice, seven separate timely petitions to intervene were filed. Almost all of these petitions were later amended, amplified and revised (some more than once). But of the seven timely filed petitions, subsequent orders of this Board have admitted six of the petitioners as full party intervenors, and the seventh (Mrs. Weik) was granted leave to participate in a limited appearance status. A late petition filed by the Attorney General of the State of New York September 12, 1974, was accepted and admitted by the Board for good cause shown. (There had already been another state representative admitted—the New York State Atomic Energy Council—pursuant to the "interested State" provisions of 10 CFR §2.715(c).) Thus, we now have two state representatives admitted to the proceeding, one which timely filed and one which filed late, and a total of seven petitioners granted active participatory status in the hearing process:

The Springville Radiation Study Group (§2.714)
The Sierra Club–Niagara Group (§2.714)
The Citizens' Energy Council of Western New York (§2.714)
J. Richardson Lippert II, Esq. (§2.714)
Ross Scott (§2.714)
New York State Atomic Energy Council (§2.715(c))
Attorney General of the State of New York (§2.714)

The Commission's Notice of Hearing, published March 20, 1974, expressly provided that:

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[1] The document is dated January 28, 1975; postmarked January 29, 1975; and docket-stamped as received by Public Proceedings as of 4:00 P.M. February 5, 1975.

A petition for leave to intervene must be filed with the Secretary on or before April 19, 1974. A petition for leave to intervene which is not timely filed will not be granted unless the Board determines that the petitioner has made a substantial showing of good cause for failure to file on time and after the Board has considered those factors specified in 10 CFR §2.714(a)(1)-(4) and §2.714(d).[2] [39 *Fed. Reg.* 10471].

Erie County petitions to be admitted both as a party intervenor (under §2.714) and as an "interested State" (under §2.715). In support of its petition to intervene, the County of Erie ("the County") alleges that a full hearing on this matter requires the intervention of the County to present facts that affect the interests of the County, and such interests are not represented adequately by any other interested group; that the County has the financial resources and technical expertise to be an active participant in the hearings, and the County is the proper representative for the citizens of Erie County; and that since the first hearing is not scheduled[3] until the end of 1975, no delay in the proceeding or prejudice to any party will result from this intervention.

In support of its showing of good cause for nontimely filing (over 9 months late), the First Assistant County Attorney avers that the County Legislature did not receive requests from its residents to act on this matter until after such date (filing date of April 19, 1974) had passed, and that on October 15, 1974 the Erie County Legislature requested the County Attorney's office to intervene in the proceeding. On February 5, 1975, the County's petition and County Attorney's supporting affidavit were received by the Secretary of the Commission.

Nuclear Fuel Services, Inc. ("the Applicant") opposes the petition on grounds of untimeliness, and other grounds going to the merits of the contentions, lack of particular expertise of the County to participate, no showing of additional evidence producible by the County, and an inevitable delay to the proceeding if a tenth fully participating party were now to be added

[2] The pertinent portion of the Commission's Regulations referred to in the Notice of Hearing provides as follows: "Nontimely filings will not be entertained absent a determination... that the petitioner has made a substantial showing of good cause for failure to file on time, and with particular reference to the following factors in addition to those set out in paragraph (d) of this section: (1) The availability of other means whereby the petitioner's interest will be protected, (2) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record, (3) The extent to which petitioner's interest will be represented by existing parties, and (4) The extent to which petitioner's participation will broaden the issues or delay the proceeding." 10 CFR 2.714(a).

[3] It is true that no date of any kind has been "scheduled," as yet, for the start of the evidentiary hearing. There have been two prehearing conferences so far (July 9 and October 17, 1974). The Board's best estimate, based upon the pace of the prehearing procedures and discovery process now underway since July of 1974, is that the public hearings may start in the early Fall of this year.

to the case. The Applicant also points out that all four contentions offered by the County are already encompassed in the contentions of existing, participating intervenors.

The NRC Regulatory Staff ("the Staff") opposes the County's petition for admission as "an interested State" under §2.715(c), but does not oppose admission as a full party intervenor under §2.714. The Staff further believes that good cause has been shown for the untimely filing.

Before embarking upon a discussion of what the Board considers to be the controlling issue in this petition—whether substantial good cause has been shown for the late filing—the Board would like to dispose of the other questions that must be resolved in connection with any petition to intervene. This might facilitate a more prompt resolution of the entire matter, should later review be undertaken of the Board's order ruling on the petition.

First, the Board agrees with the Staff's position that Erie County does not appropriately come within the purview of 10 CFR §2.715(c) to intervene as "an interested State." As expressed by the Staff, a county is only a political subdivision of the State and is geographically limited to representing the people within its boundaries. In no sense could Erie County be deemed to be a representative of all the people in the entire State of New York. Accordingly, that aspect of the County's petition is denied. It should be noted that the State of New York already has been admitted as a full participant in this proceeding by two separate official state representatives—the Attorney General of the State of New York (under §2.714) and the New York State Atomic Energy Council (under §2.715(c) as "an interested State").

Secondly, the Board also agrees with the Staff that Erie County, being adjacent to the county in which the subject facility is located, has a cognizable interest sufficient[4] to meet the interest requirements of 10 CFR §2.714. The County alleges that Cattaraugus Creek runs through Erie County and will carry liquid effluent from the subject plant, that citizens of Erie County are employed by the Applicant, that nuclear material for the plant will be routed through Erie County, and that the plant site is near the Erie County border so that any incident at the plant will affect all the citizens of Erie County.

Thirdly, the Board accepts the Staff's position that, at this stage, a properly admissible intervention petition need specify only one relevant contention with

[4] *Cf., Gulf States Ultilities Company* (River Bend Station, Units 1 and 2), ALAB-123, RAI-74-3, 222 (March 12, 1974); *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-107, RAI-73-3, 188 (March 29, 1973); *Public Serv. Elec. & Gas Co.* (Salem Station) ALAB-136, RAI-73-7, 487 (July 12, 1973); *Duke Power Co.* (Catawba Nuclear Sta.) ALAB-150, RAI-73-10, 811 (Oct. 2, 1973).

reasonable specificity and some basis assigned for it.[5] Further, the Board recognizes the County's liquid effluents contention to be such a valid contention (page 3 of County's petition). Thus, except for the question of timeliness, the Board would grant the County's petition and admit it as a full party intervenor.

THE QUESTION OF SUBSTANTIAL CAUSE FOR LATE FILING

The Board disagrees with the Staff's conclusion that the petitioner has made a "substantial showing of good cause for failure to file on time," as required by the Commission's Rules of Practice, 10 CFR §2.714(a), and the Commission's March 8, 1974 Notice of Hearing, and it is on this sole basis that the Erie County petition is being rejected, and after due consideration of those factors specified in 10 CFR §2.714(a)(1)-(4) and §2.714(d).

Several hearing boards have accepted late-filed intervention petitions after finding substantial good cause for lateness,[6] and several boards have rejected intervention petitions after finding the petitioner had not established good cause for lateness.[7] However, insofar as late petitions have been accepted in other proceedings, as the Appeal Board has noted in the *Beaver Valley* case,[8] the existence of "good cause" must be determined on the basis of the circumstances of the particular case. "Thus, the disposition made of a late petition in one case, provides little guidance for the proper disposition of such a petition in a subsequent case, unless there is a close parallel in attendant circumstances."[9]

But what are the circumstances surrounding the Erie County late petition? The Commission's Notice of Hearing, dated March 8, 1974, published in the *Federal Register* March 20, 1974; provided for intervention petitions to be filed

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[5] *Duquesne Light Co.* (Beaver Valley Power Sta.), ALAB-109, RAI-73-4, 243, 245, April 2, 1973; *Northern States Power Co.* (Prairie Island), ALAB-107, RAI-73-3, 188, 193-194, March 29, 1973; *Mississippi Power & Light Co.* (Grand Gulf), ALAB-130, RAI-73-6, 423, June 19, 1973; *Louisiana Power & Light Co.* (Waterford), ALAB-125, RAI-73-5, 371, 372, May 25, 1973; see also Commission's Order in *Phila. Electric Co.* (Peach Bottom), CLI-73-10, RAI-73-3, 173, 174, March 30, 1973.

[6] Late petitions accepted: *Northern States Power Co.* (Prairie Island Plant), ALAB-107, RAI-73-3, 188, 193, March 29, 1973 [Gadler petition 3 days late]; *Duke Power Co.* (Catawba Nuclear Station), LBP-73-28, RAI-73-9, 666, 675, Sept. 6, 1973 [Riley petition 11 days late].

[7] Late petitions rejected: *Iowa Electric Light & Power Co.* (Duane Arnold Energy Center), ALAB-108, RAI-73-3, 195 March 29, 1973 [Laitner, two months late]; *Duquesne Light & Power Co.* Beaver Valley Station), ALAB-208, RAI-74-6, 959, 960, June 10, 1974 [City of Cleveland, two months late]; *Boston Edison Co.* (Pilgrim Nuclear Power Station), LBP-74-63, RAI-74-8, 330, Aug. 30, 1974 [PCNIC, five months late]. See also *Easton Utilities Commission* v. *AEC*, 424 F.2d 847 (D.C. Cir. 1970) [Munic. Util. Commis., seven months late].

[8] *Duquesne Light Co.* (Beaver Valley Power Station), ALAB-208, RAI-74-6, 959, 967, N.7, June 10, 1974.

[9] *Ibid.*

on or before April 19, 1974. Now, almost a year later, Erie County for the first time files a pleading in the proceeding—a petition for leave to intervene filed over ten months after the Commission's Notice was published. The only explanation offered for the delay in filing is that: (1) the County Legislature did not receive requests from residents . . . to act on this matter until after such (filing) date passed, and (2) the Erie County Legislature on October 15, 1974 requested the County Attorney's Office to intervene in this matter. However, these two assertions raise more questions about dilatory conduct than they answer. For example, if the county residents failed to request the County Legislature to act until *after* the filing deadline, what was the reason for such a delay by county residents? How long after the filing date did county residents wait before requesting their legislature to act on their behalf, and if it was *soon* after the deadline date, why the further long delay by the legislature? If the County Legislature finally decided to act on October 15, 1974, what is the "good cause" in not filing its petition until January 29, 1975? In this latter regard, the Board finds it quite curious that even though the County Legislature finally agreed to act on October 15, 1974, this Board held a Second Prehearing Conference in Buffalo (the Erie County seat) on October 17, 1974, at which Ms. Joan Loring, Esq. of the Erie County Attorney's Office filed a notice of appearance (see tr. 67) on behalf of Erie County, and yet no petition or other pleading of any kind was attempted to be served or filed then or at any time in the over three months thereafter. If by some legalistic stretch of the imagination we were to assume that the Commission's customary 30-day period for filing intervention petitions could be taken as starting either when the County Legislature finally decided to act (October 15, 1974) or when a County Attorney (Ms. Loring) filed her notice of appearance at the Second Prehearing Conference (October 17, 1974), the County would still be over two months late with its January 29, 1975 petition. Taking just these most recent dates, starting with the County's decision to act, we are unavoidably left with an impression of a rather casual attitude by the County in regard to complying with the Commission's Rules of Practice.

On the one hand, the Board can see no justifiable excuse, no less "substantial good cause," for Erie County residents to wait from March to October before requesting its legislature to act (or, alternatively, to take individual action themselves to intervene), and, on the other hand, the Board can see no justifiable reason why the County Legislature, having once decided to act on October 15, 1974, should wait until 3½ months later to file its intervention petition. For all that appears on the face of the petition and its supporting affidavit, both delays were inordinate and unjustified.

Neither the petition nor the supporting affidavit make any attempt to identify precisely who the Erie County citizens are that waited until October to request action by their legislature, or exactly when their request was made. In the absence of such information the Board can only speculate as to *their* "good cause" for delay, or to attempt to determine wherein and how much was citizen

delay and how much was County Legislature delay. Further, the pleading submits nothing to discount the possibility that the only Erie County citizens requesting this action may be some of the same persons already actively participating as party intervenors under the banner of some other group already admitted. Such an inquiry is certainly an appropriate consideration for the Board, particularly in evaluating a claim of "substantial good cause" for late filing (e.g., if the only persons prompting the Erie County Legislature to intervene are themselves already active in the proceeding by virtue of a petition timely-filed for another organization, they could hardly claim that they did not know earlier of the pendency of the proceeding or the Commission's filing requirements).

Additionally, in evaluating the question of substantial good cause for late filing, the Board need not disregard the readily observed extensive publicity given this proceeding from the time of its first publication in the *Federal Register* (March, 1974), up to and through two prehearing conferences held in Buffalo over three months apart (July 9 and October 17, 1974). Buffalo is the largest city in Erie County and the second largest in the state, with several newspapers, radio and TV stations. It also is the location of the Erie County Legislature and the Erie County Attorney's Office.[10] In addition to the official *Federal Register* publication of the Commission's Notice of Hearing (summarizing procedures for intervention, filing deadlines and locations of documents relating to the case) and the Board's Notice of Prehearing Conferences, the local Buffalo newspapers, television and radio publicized AEC press releases and gave press coverage to the proceedings. (Both prehearing conferences were heavily attended by the Buffalo press, radio and TV news reporters.) There was press coverage before and after both prehearing conferences. Accordingly, it is difficult to imagine that either Erie County residents or members of the Erie County Legislature were not aware of what was taking place regarding this proceeding in March, April, July or October of 1974. Nor does the Erie County petition make any such claim.[11]

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[10] The County Attorney's Office has a staff of 26 lawyers and is located one city block from the location of the Board's prehearing conferences. With this size legal staff, operating in the second largest city in New York State, it is clear that we are not concerned here with a *pro se* petitioner nor with counsel inexperienced in conducting litigation before administrative agencies. See, *Duquesne Light Co.* (Beaver Valley), ALAB-208, RAI-74-6, 959, 966 (June 10, 1974).

[11] Nor can the Board accept the implied argument that an inordinate delay by residents in requesting County action should eliminate applicability of filing deadlines for the County. It would make little sense to allow one party to grossly disregard a filing deadline by the simple expedient of asking someone else to represent him six months later. *Cf. Duquesne Lt., supra* note 10, at 966-967. At the outset, such argument contains the essential assumption that the County acted expeditiously after receiving the request. The facts here establish the opposite.

CONSIDERATION OF OTHER FACTORS PURSUANT TO §2.714(a) & (d)

In accordance with the Commission's published Notice of Hearing (March 8, 1974) and 10 CFR §2.714(a), a nontimely petition for leave to intervene will not be granted unless the Board determines that the petitioner has made a "substantial showing of good cause for failure to file on time" and after the Board has considered the four factors specified in §2.714(a)(1) thru (4).

With regard to (a)(1), "the availability of other means whereby the petitioner's interest will be protected," the Board observes that all four contentions specified on page 3 of Erie County's supporting affidavit are substantially identical to, though not as detailed as,[12] specific contentions already advanced by other party intervenors in this proceeding, and such contentions have already been expressly admitted as matters in controversy by prior Orders of this Board. (As another means of protecting its interest, the County is invited to participate in the proceeding by means of the limited appearance procedure set forth in the Commission's Rules of Practice, 10 CFR §2.715(a).)

With regard to (a)(2), "the extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record," the County has offered no information or allegations that would lead the Board to conclude that Erie County officials can produce any special expertise or access to evidence not already possessed or demonstrated by other parties to this proceeding, beyond the broad allegation in the supporting affidavit that "the County has the financial resources and technical expertise to be an active participant in these hearings."

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[12] Although the already-admitted contentions of intervenors now participating in this proceeding are substantially identical as to the subject areas of interest encompassed in the County's petition, the presently-admitted intervenors have expressed their contentions with much greater technical detail and specificity:

On the past operating record of NFS, see Sierra Club contentions II(7) & (8), V(a) thru (f); Springville Radiation Study Group contentions 1(a) thru (k); and Ross Scott contentions II(A) thru (E).

On exposure of employees to radioactive contamination, see Sierra Club contentions IIIB4, IIIC3, V(b), (e) (d) & (e); Springville Radiation Study Group contentions 1(b), (c), (d) & (g) thru (k); and Ross Scott contentions IG, IIA(1) thru (3), IIB(1) thru (4), VD.

On radioactive effluents in Buttermilk Creek and Cattaraugus Creek, and resultant dangers to the environment, public health and safety, see Citizens Energy Council contentions A(1) & (4), B and C; Sierra Club contentions IA3(b), IA2(d), IB4, IB5, IB6, IC2(b)(1), IC4(a), IC4(b), IC5(a) & (b), IC5(b), IC6(a), IE1, IE2(c) & 6(d); and Ross Scott contentions IE3.

On transportation of nuclear materials, see Sierra Club contentions II(1) thru (9), IJ(a) and IIIE.

As to the third factor, in addition to the duplication of contentions already in issue,[13] as set forth in our discussion of (a)(1) above, our consideration of (a)(3), "the extent to which petitioner's interest will be represented by existing parties,"[14] leads us to conclude that between the Attorney General of the State of New York, the New York State Atomic Energy Council, and the various other intervenors residing in the immediate vicinity of the plant or groups representing such individuals, the interests of Erie County residents are already being adequately, aggressively and effectively represented.

As to the fourth factor, §2.714(a)(4), "the extent to which the petitioner's participation will broaden the issues or delay the proceedings," the Board cannot say that the County's participation will broaden the issues, since it advances contentions that merely duplicate others already in issue. However, judging by the extensive discovery arrangements that have already taken place, both formally and informally for about a year now (as evidenced by copies of discovery correspondence routinely filed with the Board), it is very likely that some substantial delay to the proceeding would result from admitting the County as a full party at this late date. The highly technical nature of the voluminous documentation required to be analyzed by any party to a license proceeding such as this, to allow for meaningful, knowledgeable participation, would seem to point to unavoidable delay for "catch-up" purposes for any party entering the fray this late. In addition to its adverse effects on the hearing process, to require the Applicant to now repeat step-by-step (as one document leads to another), its provision of access to discovery documents to a single, entirely new intervenor (as opposed to the more expeditious and economical method of providing access to intervenors as a group), would appear to be unfair, duplicative, and unnecessarily burdensome.

Insofar as considering the three factors specified in §2.714(d), pursuant to the Commission's Notice of Hearing and §2.714(a), the Board has already resolved those items in favor of the petitioner, *supra*, wherein the Board acknowledged, at the outset, the County's standing to come in as a party intervenor but for the question of timeliness.[15]

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[13] See *Boston Edison Co.* (Pilgrim Nuclear Sta.), LBP-74-63, RAI-74-8, 330, 331-332 *affirmed*, ALAB-238, RAI-74-10, 656, Oct. 22, 1974; *BPI* v. *AEC*, 502 F.2d 424 (D.C. Cir. 1974); and *Cities of Statesville* v. *AEC*, 441 F.2d 962 (D.C. Cir. 1969).

[14] *Cf. City of San Antonio* v. *C.A.B.*, 374 F.2d 326, 331-333; *Office of Communication of the United Church of Christ* v. *F.C.C.*, 359 F.2d 994, 1005-1006 (D.C. Cir. 1966).

[15] *Cf., City of San Antonio* v. *C.A.B.*, *supra* note 14, at 332.

CONCLUSION

There is no question that we are mandated, by law,[16] regulations,[17] and the Commission's expressed policy,[18] to encourage the fullest public participation in our proceedings. But an agency's procedural rules are not likely to be ignored.[19]

Under all the facts and circumstances, it appears to the Board that Erie County has "slept on its rights." The Board concludes that the public interest objectives in prompting public participation in these proceedings would not be advanced by now admitting Erie County as a full party at this late date. There is a complete lack of reasonable justification for its over nine-month delay in filing; it appears that its interests, as asserted in its petition, will be adequately protected by other parties already admitted as intervenors, both in terms of the nature of the interests asserted and the specific subject matters alleged as issues to be tried in the hearing; and no substantial purpose would be served by now granting full party status to the County in terms of "assisting the Commission in the resolution of the issues to be decided."[20]

ORDER

Having duly considered the petition to intervene of the County of Erie, the attendant circumstances surrounding its filing and the progress of the proceeding thus far, and having also duly considered the factors set forth in the Commission's March 8, 1974 Notice of Hearing, the Board finds that the County has failed to make a substantial showing of good cause for failure to file on time.

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[16] § 189(a) of Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2239(a).

[17] See, e.g., 10 CFR §§ 2.104, 2.105, 2.106, 2.604, 2.701, 2.703, 2.713(a), 2.714, 2.715, 50.58(b).

[18] Most recently expressed in *Northern States Power Co.* (Prairie Island), CLI-75-1, NRCI-75/1,1,2, Jan. 27, 1975, *affirming* ALAB-252, wherein the Commission stated:

> (W)e wish to underscore the fundamental importance of meaningful public participation in our adjudicatory process. Such participation, performed in the public interest, is a vital ingredient in the open and full consideration of licensing issues and in establishing public confidence in the sound discharge of the important duties which have been entrusted to us.

[19] See, e.g., *BPI* v. *AEC*, 502 F.2d 424, 426-428 (D.C. Cir. 1974); *Easton Utilities Comm.* v. *AEC*, 424 F.2d 847, 850-852 (D.C. Cir. 1970); *FCC* v. *Schreiber*, 381 U.S. 279, 290-291 (1965); *Telephone Users Assoc.* v. *FCC*, 375 F.2d 923 (D.C. Cir. 1967); *Munic. Light Bds., etc.* v. *FPC*, 450 F.2d 1341, 1346 (D.C. Cir. 1971); *Boston Edison Co.* (Pilgrim Sta.), LBP-74-63, RAI-74-8, 330, 335-337, Aug. 30, 1974; *Duquesne Light Co.* (Beaver Valley), ALAB-208, RAI-74-6, 959, 965, June 10, 1974; *Phila. Elec. Co.*, (Peach Bottom Sta.), 4 AEC 151 (1968).

Cf., Jupiter Corp. v. *FPC*, 363 F.2d 92, 94 (7 Cir. 1968); and *Smith & Solomon Trucking Co.* v. *U.S.*, 255 F. Supp. 243 (USDC, N.J. 1966).

[20] *BPI* v. *AEC*, *supra* note 19, at 429.

Accordingly, the County's petition is DENIED, without prejudice, however, to a request being filed for a limited appearance under §2.715(a) of the Commission's Regulations.

Pursuant to the Commission's Rules of Practice, an Order of an Atomic Safety and Licensing Board designated to rule on petitions for leave to intervene and/or requests for hearing may be appealed to the Atomic Safety and Licensing Appeal Board *within five (5) days* after service of the Order. The appeal shall be asserted by the filing of a Notice of Appeal and accompanying supporting brief. See 10 CFR §2.714a(a) & (d).

Dr. Frederick P. Cowan and Dr. Hugh C. Paxton, members of the Board, join in the Memorandum and Order.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING BOARD

Thomas W. Reilly, Esq., Chairman

Issued at Bethesda, Maryland
this 26th day of February, 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-5

ATOMIC SAFETY AND LICENSING BOARD

John B. Farmakides, Chairman
David L. Hetrick, Member
Frank F. Hooper, Member

In the Matter of

FLORIDA POWER & LIGHT COMPANY

(St. Lucie Nuclear Power Plant
Unit No. 2)

Docket No. 50-389

February 28,1975

APPEARANCES

Norman A. Coll, Esq., and Matthew M. Childs, Esq., McCarthy, Steel, Hector and Davis, accompanied by Harold F. Reis, Esq., Jack R. Newman, Esq., and Anthony Gambardella, Esq., Newman, Reis, and Axelrad on behalf of Applicant.

Martin H. Hodder, Esq., on behalf of the Intervenors.

Richard Boone, Esq., on behalf of the Regulatory Staff, Federal Power Commission.

Perry B. Seiffert, Esq., James Tourtellotte, Esq., Gregory Fess, Esq., Daniel Swanson, Esq., and A. Gray Staples, Esq., on behalf of the Regulatory Staff.

Upon application for construction permit for St. Lucie Unit 2, Licensing Board issues a partial initial decision on environmental and site suitability aspects of the facility and makes factual determinations requisite for the issuance of an LWA, including imposition of certain conditions.

LWA: SITE REDRESSIBILITY

An applicant may be required to redress the site after LWA activities in the event a construction permit is subsequently denied. The extent to which such LWA activities can be redressed must be factored into the cost-benefit balance to be performed by the Board.

PARTIAL INITIAL DECISION— ENVIRONMENTAL AND SITE SUITABILITY

I. Preliminary and Background

1. By application filed on May 14, 1973, the Florida Power and Light Company (Applicant) moved for a construction permit authorizing the construction of the proposed St. Lucie Nuclear Power Plant, Unit No. 2 facility. The proposed plant is a nuclear pressurized water reactor with a gross electric power output of approximately 850 MW and a thermal power rating of 2560 MW. The Unit is to be constructed on Hutchinson Island, approximately midway between the cities of Fort Pierce and Stuart, Florida, and will be adjacent to St. Lucie Unit No. 1, a nuclear plant of similar design and power output currently being constructed on the same site pursuant to Construction Permit CPPR-74 (Docket No. 50-335).[1]

2. On September 21, 1973, the U.S. Atomic Energy Commission (Commission) published in the *Federal Register* a Notice of Hearing on Application for Construction Permit.[2] The Notice, *inter alia*: (1) set forth the requirements to be met in considering the application pursuant to the Atomic Energy Act of 1954, as amended;[3] (2) established issues pursuant to the National Environmental Policy Act of 1969 (NEPA);[4] (3) provided that persons wishing to intervene in the proceeding could file petitions for leave to intervene by October 23, 1973; and, (4) designated this Atomic Safety and Licensing Board (Board) for this proceeding.

3. Pursuant to said notice, on October 23, 1973, a Petition for Leave to Intervene was filed by Martin Harold Hodder, *pro se*, and as Attorney for Rowena E. Roberts, Kevin M. Donovan, Loretta Donovan, E. Gardner Prime,

[1] Final Environmental Statement (Staff Exhibit S-1, p. 1-1).
[2] 38 *Fed. Reg.* 26482.
[3] 42 U.S.C. 2011, et. seq.
[4] 42 U.S.C. 4321, et. seq.

Valerie Prime, and Nathaniel Eric Hodder (Intervenors). A letter dated December 9, 1973, and filed by Mrs. B. L. Wells was denied as a petition to intervene for failure to conform to requirements of §2.714 of the Rules and for untimely filing. Mrs. Wells, however, was granted permission to make a limited appearance and did so at the evidentiary hearing. Pursuant to a "Notice of Special Prehearing Conference", issued on November 16, 1973,[5] this Board held a prehearing conference in Miami, Florida, on December 4, 1973. By its "Prehearing Conference Order" of January 24, 1974, the Board admitted certain contentions of Intervenors as issues in controversy in this proceeding and ordered commencement of discovery. All contentions not admitted were denied. Accordingly, this proceeding is a contested proceeding as defined in 10 CFR §2.4(n).

4. On June 20, 1974, the Board issued "Prehearing Conference Order No. 3" setting forth in Appendix A thereof the issues admitted as matters in controversy in this proceeding.[6] The matters in controversy thus admitted were further refined through prehearing procedures and procedural rulings to the effect that Contention 2.2 was amended to include subissues relating to: (a) reactor distance to nearest population center; (b) definition of LPZ; and (c) definition of exclusion area. Contention 1.2(c) was amended to change the word "genetic" to "somatic".[7]

5. By separate motions filed on September 10, 1974, the Applicant and AEC Regulatory Staff moved for summary disposition under §2.749 as to specific contentions of the Intervenor. The Board ruled thereto in an Order on Motions for Summary Disposition dated September 25, 1974. *Inter alia*, it noted that Applicant's motion as to Contentions 1.5, 2.1(e), and 3.1[8] were not opposed by Intervenor, concluded that there was no material fact in dispute thereto and accordingly granted the motions for summary disposition and dismissed said contentions. The Board also dismissed Contentions 1.6(a)(b), 1.7, 2.1(a)(c)(d), and 2.2(e)(1)(2) after finding that no genuine issue of material fact was raised thereby. After allowing Intervenor further time to respond to Applicant's Motions for Summary Disposition on Contentions 1.4 and 2.2(e)(3), the Board ruled that no genuine issue of material fact existed with respect to these contentions, and accordingly dismissed them.[9] The Board denied Motions for Summary Disposition as to Contentions 1.2.1, 1.6(c), 2.1(b), and 2.3(i).[10]

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[5] 38 *Fed. Reg.* 29483.

[6] The matters in controversy admitted are reproduced as Appendix A to this Initial Decision. (Appendix A is omitted from this publication.)

[7] Tr. 161, 446, 683.

[8] See Appendix A (omitted from this publication).

[9] Tr. 157 (as corrected), 160.

[10] Thus the final list of contentions for hearing were: 1.1(a)(b); 1.2(a)-(d); 1.2.1; 1.3(a)-(e); 1.6(c); 2.1(b); 2.2(a)-(d); 2.3(a)-(j); 3.2.

6. In addition to the final statement of contentions, the Board itself raised questions on which it required the Applicant and Staff to produce testimony. These questions were issued as Appendix A to the Board's September 24 Order and are reproduced herein as Appendix B to this Initial Decision. (Appendix B is omitted from this publication.)

7. Pursuant to published notice[11] the Board held a third Prehearing Conference on October 8, 1974. Thereafter, the evidentiary hearings began on October 16, 1974, and continued on consecutive days until the hearing was completed, except for those recesses requested by the parties.[12] Limited appearance statements were received in the record from four persons.[13]

8. The record in this case consists of all the material pleadings filed, all the evidence received, including all the exhibits identified and incorporated in Appendix C (omitted from this publication) to this Initial Decision, and all the transcripts of testimony presented at the prehearing conferences and the evidentiary hearing as corrected by Order correcting transcripts dated February 27, 1975. The Board, after discussion with the parties, undertook its own independent research and took official notice of a Staff exhibit it found to be an official document of the State of Florida which had been consulted by a Staff witness. In addition, at the request of the Board,[14] made on the record with notice to all parties, the Applicant filed on November 27, 1974, with copies to all parties, (a) the variance issued to the Applicant by the Florida Department of Pollution Control (DPC), (b) Applicant's letter to said DPC dated November 25, 1974. These three documents are received into evidence as Applicant's Exhibits 8, 9, and 10 respectively.

9. In making these findings and conclusions, the Board reviewed and considered the entire record of the proceeding and all the proposed findings of fact and conclusions of law submitted by the parties in the proceeding. All of such proposed findings of fact and conclusions of law which are not incorporated directly or inferentially herein are rejected as being unsupported in law or fact or as unnecessary to the rendering of this Partial Initial Decision. Numerous procedural motions and pleadings presented in the course of this proceeding were considered and resolved by the Board on the record and are not addressed in this Partial Initial Decision unless specifically referred to in the proposed findings of the parties and considered by the Board to be necessary in the rendering of this Decision. It is to be noted that the further evidentiary

[11] 39 *Fed. Reg.* 33587, September 18,1974.

[12] Hearings were held on October 16-18, October 21-25, November 6-8 and November 18-19.

[13] Bruce Robinson of West Palm Beach, (Tr. 248), Harry Alder of Ft. Pierce (Tr. 249), Betty Lou Wells of Ft. Pierce (Tr. 251), and Carol Herzog of Ft. Pierce, (Tr. 250 and 260).

[14] Tr. 3299.

hearings to be held on the health and safety phase in this proceeding will include two contentions of Intervenors deferred from this environmental phase by agreement of all parties.

10. The Intervenor filed "Intervenor's Proposed Findings of Law" on December 16, 1974, and failed in that document to address Contentions 1.1, 1.2, 1.2.1, 1.6(c), 2.3, and 3.2. The Applicant filed "Reply of Applicant to Proposed Findings of Fact and Conclusions of Law" on December 27, 1974, in which the Board is requested to declare the Intervenor to be in default with respect to these issues. The Board, while agreeing that such default may exist, will nevertheless address all of the matters in controversy in an effort to resolve these matters on merit rather than on technical grounds.

II. Findings of Fact

A. Matters in Controversy

11. For clarity the Board will first address and resolve the matters in controversy admitted in this proceeding before addressing the ultimate issues contained in the Commission's Notice of Hearing or the questions posed by the Board. Contentions that are closely related will be grouped in categories and considered simultaneously.

12. The radiological impact of the proposed facility was the subject of the following contentions:

Contentions 1.1, 1.2, and 1.2.1

1.1 Whether the St. Lucie Unit 2, alone, or in combination with other plants on the site will discharge radioactive effluents to air and water which are not "as low as practicable" as to:

(a) Gaseous radwaste from condenser air ejectors; mechanical vacuum pump; radwaste, reactor and turbine building vents; and containment purge.

(b) Liquid radwaste returned to the condensate system and packaged for offsite shipment or discharged from the plant in the circulating water system.

1.2 Whether even if radioactive effluents from St. Lucie Unit No. 2, alone, or in combination with other plants on the site, comply with the Commission's "as low as practicable" criteria, the cost-benefit balance is unfavorable for the facility because the following costs are still too great:

(a) The genetic effect on the population and plant employees generally;

(b) The genetic effect on human fetuses and breast-fed infants;

(c) The somatic effect through milk pathway to consumers of milk produced within a 50-mile radius of facility;[15]

(d) The genetic effect through the food pathway including leafy vegetables.

1.2.1 Whether even if radioactive effluents from St. Lucie Unit No. 2, alone, or in combination with other plants on the site, comply with the Commission's "as low as practicable" criteria, the cost-benefit balance is unfavorable for said Unit No. 2 because such effluents will produce somatic damage to persons particularly susceptible to carcinoma.

13. Dr. Walton A. Rodger conducted an independent evaluation of the proposed facility, on behalf of the Applicant, using both the Staff's standards and a subjective cost-benefit analysis.[16] All radwaste systems cited in Contention 1.1 were included.[17] Dr. Rodger concluded that the design guides of the proposed Appendix I to 10 CFR Part 50 are met.[18] Using his cost-benefit analysis, Dr. Rodger also concluded that no additional radwaste treatment systems are warranted even if the population within 50 miles were to double.[19]

14. Drs. Joop W. Thiessen and Roger Linnemann evaluated genetic and somatic effects of radioactive effluents from the St. Lucie facility on behalf of the Applicant. They conclude that the genetic effects addressed in Contention 1.2 would not be measurable and that in the case of the general population such effects would be trivial.[20] With regard to Contention 1.2(c), they conclude that the risk of thyroid cancer, the dominant somatic effect through the milk pathway, will not be increased over that in the population at large.[21] Finally, they conclude that the risk to susceptible persons from other carcinogenic factors is far more important than their risk from all types of radiation, noting that the radiation component of the risk is dominated by the natural background radiation.[22]

15. The Staff evaluated the facility, including all radwaste treatment systems cited in Contention 1.1.[23] Using tabulated releases[24] and dose calculations[25]

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[15] At the request of the Intervenor, and following oral argument, the word somatic was inserted in lieu of the word genetic previously appearing in 1.2(c). (Tr. 446).

[16] Testimony of Dr. W. A. Rodger following Tr. 2098, p. 1-3.

[17] Id., pp. 4, 8.

[18] Id., at p. 18.

[19] Id., at p. 22; Tr. 2108-11.

[20] Testimony of Drs. Thiessen and Linnemann following Tr. 2100, p. 15.

[21] Testimony of Drs. Thiessen and Linnemann following Tr. 2102, p. 4.

[22] Testimony of Drs. Thiessen and Linnemann following Tr. 2106, p. 7.

[23] Testimony of James C. Malaro following Tr. 2236 pp. 4-5.

[24] FES pp. 3-26, 3-31.

[25] FES Section 5.4.

based on these releases, the Staff concluded that the St. Lucie facility will meet all of the Staff's "as low as practicable" guidelines, and in the Technical Specifications, the Applicant will be required to do so.[26]

16. Using population doses calculated by Staff Witness David A. Baker,[27] Staff Witness Dr. Michael A. Bender[28] evaluated genetic effects and Dr. Norman A. Frigerio[29] evaluated somatic effects. The Staff concluded that health effects will be negligible both in the exposed population and in its descendants.[30] With respect to Contention 1.2(c), the Staff concluded that the somatic risk through the milk pathway is so low that not a single mortality would be expected during the expected life of the plant.[31]

17. With respect to these contentions, Intervenors through their Witness Dr. Karl Z. Morgan questioned the calculation of I-131 dose because of a discrepancy between I-131 gaseous release calculations as made by the Applicant and the Staff.[32] However, the order-of-magnitude discrepancy (0.01 Ci/yr as compared to 0.09 Ci/yr) appears in a single component of the total I-131 release and was explained by the use of different sets of assumptions.[33] Calculations of total release of I-131 are more nearly in agreement: 0.31 Ci/yr as compared to 0.18 Ci/yr,[34] and there is agreement that the dose is determined by the total release.[35] Dr. Morgan also questioned the Staff's calculations of liquid releases as found in Table 3.3 of the FES p. 3-26, suggesting a number of improper omissions.[36] He asserted that, based on very conservative assumptions, a dose of 1 mrem/yr from C-14 could be expected at one kilometer from the plant.[37] However, the witness stated that he had performed no calculations for St. Lucie;[38] that the calculated result he cited is probably very high, perhaps by a factor of 100;[39] and agreed that even the cited result would not exceed the Staff's guidelines.[40] Dr. Morgan also asserted that a number of hazardous heavy

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[26] See footnote 23, p. 5 *supra* (hereinafter a footnote will be designated "note").

[27] Testimony of David A. Baker, original version following Tr. 2246; amended version following Tr. 2376.

[28] Testimony of Michael A. Bender following Tr. 2555 (Corrections, Tr. 2364-67).

[29] Testimony of Norman A. Frigerio following Tr. 2503.

[30] Note 28, p. 9.

[31] Note 29, p. 1.

[32] Testimony of Karl Z. Morgan following Tr. 3052, p. 1; Tr. 2885.

[33] FES p. 3-29.

[34] Id., p. 3-30.

[35] Tr. 3063-64.

[36] Note 32, p. 2.

[37] Tr. 3117-18.

[38] Tr. 3075.

[39] Tr. 3077.

[40] Tr. 3116.

isotopes, including those of plutonium and americium, were improperly omitted from Table 3.3 of the FES.[41] He also criticized Table 3.3 of the FES because of its criterion for excluding all isotopes having less than a stated concentration.[42] As to his points regarding Table 3.3 of the FES, Staff Witness Kastner explained that the criterion for excluding isotopes by concentration level was selected after studying the biological risks associated with the excluded isotopes and determining that their contributions would be negligible.[43] The Board accepts the explanation of the Staff as reasonable and hereby modifies the FES accordingly to incorporate the above explanation of Table 3.3 as given by Witness Kastner in his testimony.

18. During the course of the hearing, Intervenor's counsel alleged that dose calculations to milk consumers were not performed properly and that he wished to provide independent calculations.[44] The Board, in seeking to develop the record fully, provided several opportunities to the Intervenors, made over objections of other parties, to present such data and calculations.[45] However, none were produced. Population doses were calculated by the Applicant and Staff by using available cow census data.[46] Upon the Board's inquiry as to the location of the nearest cow, Applicant and Staff noted that their calculations were based on the nearest cow being 7.5 miles from the proposed facility.[47] The Environmental Protection Agency, commenting on the Draft Environmental Statement, noted a nearest potential pasture at two miles and calculated that a cow pastured there might result in a thyroid dose of 40 mrem/yr for a six-month old infant.[48] Applicant has agreed to the EPA suggestion of monitoring the actual locations of cows during plant operation, and the Board hereby makes this a condition of whatever authorizations flow from this Partial Initial Decision.

19. In addition, Witness Morgan questioned whether dose calculations should be restricted to persons within a 50-mile radius and not extended to include other persons who consume food produced within that radius.[49] However, the record indicates that Staff Witness Baker calculated the milk dose both ways.[50]

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[41] Tr. 2887-8, 2905, 3149.
[42] Tr. 3150-51.
[43] Tr. 3210, 3214, 3216, 3235.
[44] Tr. 174, 185.
[45] Tr. 197, 241, 243, 452, 682, 1275.
[46] Tr. 2215, 2387; Witness Baker, Table A1.
[47] Tr. 2177-2180, 2215.
[48] FES pp. 11-9, A-14.
[49] Note 32, p. 1; Tr. 2832, 3065.
[50] Note 27, pp. 5, 6, A-1, A-2.

The former method yielded the higher dose and was therefore adopted by the Staff for conservatism.[51]

20. Witness Morgan questioned several facts and procedures used by the Staff, asserting that: (a) The I-131 dose could be calculated more accurately by means of a three-component model proposed by the International Commission on Radiological Protection.[52] However, this model has not yet been published, although the material is supposedly available through Oak Ridge National Laboratory.[53] With respect to I-131, Witness Morgan first stated that the improvement in accuracy would be less than five percent but later modified this conclusion and stated that he would be surprised if it were only five percent.[54] (b) The Staff's formula for the genetically significant dose (GSD) was incorrect. He offered an alternative formula.[55] Staff Witness Bender stated that Dr. Morgan's proposed alternative formula is proper in some circumstances, such as a retrospective study, but inappropriate for a future population such as the one in question.[56] In this regard Witness Morgan stated that the calculated GSD should have been multiplied by 30 to account for accumulation up to the mean age of reproduction.[57] Staff Witness Bender stated that he had properly accounted for this factor of 30 in converting generation doses to annual doses.[58] (c) The choice of whole body dose to approximate the GSD was not being conservative.[59] Witness Bender replied that this choice was conservative because no significant amounts of radionuclides known to concentrate in the gonads would be discharged from the St. Lucie facility.[60]

21. The genetic effects listed in Contention 1.2 were examined by witnesses for the Applicant[61] and for the Staff.[62] They concluded that the total genetic risk is almost entirely determined by the exposure of plant personnel, and the resulting increase in ill health is estimated as between 0.0001% and 0.001%. The increased probability of genetic harm to offspring of plant personnel was estimated as 0.01% to 0.16%[63] by Applicant and as 0.03% by Staff.[64] These

[51] Note 27, p. A-2.
[52] Witness Morgan, see note 32, p. 1; Tr. 3064.
[53] Tr. 3069.
[54] Tr. 3071.
[55] Testimony of Karl Z. Morgan following Tr. 2830, p. 2; Tr. 3121.
[56] Tr. 3196-97.
[57] See note 32, p. 1.
[58] Tr. 3198.
[59] Tr. 2889-94.
[60] Tr. 3198-3202.
[61] See note 20, pp. 8, 9.
[62] Bender, p. 6.
[63] See note 20, p. 10.
[64] Bender, pp. 6, 7.

figures are percentages of the 6% natural incidence of genetic defects, so that the percentage of incidence would rise from 6.0 to 6.0018%, or to 6.0036% if the dose were doubled.[65]

22. The somatic risk to consumers of milk, cited in Contention 1.2(c), was estimated by the Applicant[66] and by the Staff.[67] The former estimated a maximum of one extra case of thyroid cancer in 20 years; the latter estimated less than one case in 110 years. Thyroid dose is considered to be the critical factor. As to cows' milk, it is estimated as less than 2 mrem/yr for both Units 1 and 2 combined.[68] As to a mother nursing a small child and eating 72 kg/yr of leafy vegetables from a garden at the nearest residence, she would receive an estimated maximum thyroid dose of 1.4 mrem/yr.[69] Assuming that 30% of the mother's radioiodine intake is transferred to her milk, the nursing child would receive an estimated thyroid dose of 3.5 mrem/yr.[70]

23. With respect to Contention 1.2.1, witnesses for Applicant testified that general predisposition to develop cancer appears to be nonexistent; that a genetically determined predisposition in certain individuals has been postulated, but only in theory;[71] and that the risk to susceptible persons from other carcinogenic factors far outweighs any risk from the St. Lucie facility.[72] The Staff likewise concluded that there is no evidence that affected persons are more susceptible to induction of carcinoma by radiation and that health effects will be negligible.[73]

24. Without advancing calculations or numerical comparisons and without suggesting any basis in the Commission's rules or regulations requiring same, Intervenor Witness Morgan asserted that "dose commitments"[74] should be calculated and used for the St. Lucie 2 facility, as well as for nuclear facilities in general. While such a proposal was not considered within the Commission's Rules and Regulations and considered not necessary to the rendering of this Decision, the Board is of the opinion that the proposal merits further review and evaluation. Accordingly, the parties are advised that the Board will receive evidence on this subject during the health and safety phase of this proceeding.

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[65] Tr. 2638-39.
[66] See note 21, p. 3.
[67] See note 29, p. 1.
[68] FES p. 5-15; Rodger Table 21; Tr. 2131.
[69] FES p. 5-17.
[70] Id., Tr. 2535-36.
[71] See note 22, pp. 5, 6.
[72] Id., p. 7.
[73] Bender, pp. 8, 9.
[74] See note 32, p. 2; Tr. 3083-88.

25. Witness Morgan stated that there is no dose of radiation so low that the probability of radiation damage would be zero.[75] He asserted that the linear hypothesis for extrapolating from high dose to low dose may not be conservative.[76] However, witnesses for all parties agreed that they have used, or would use, the linear hypothesis.[77] The Board accepts the linear hypothesis as a basis for the Staff's conclusions but notes that there is disagreement regarding the importance of "uncertainties".

26. Witness Morgan questioned[78] the Applicant's health physics program described in Section 12 of the Preliminary Safety Analysis Report[79] and summarized at p. 12-5 in the Safety Evaluation Report.[80] The Board will inquire in greater detail into the health physics program at an appropriate time during the health and safety phase of this proceeding and accordingly defers any ruling thereon at this time.

27. Intervenors contend that the estimated dose of 15 man-rem per year from fuel transportation to and from the site (both units) is too high[81] and proposed shipment of fuel by barge as an alternative. There was other testimony, however, to the effect that there is no assurance that reprocessing facilities will be able to handle barge shipments.[82] The issue raised deals with direct radiation from shielded fuel elements in transit and does not appear materially relevant to Contentions 1.1, 1.2, and 1.2.1, which deal with radioactive effluents from the plant. The Board permitted some testimony on this point until it became clear that there was no material issue at this environmental phase of the proceedings.

28. Witness Morgan asserted that the estimated dose to plant personnel is much too high.[83] The Staff estimate for a typical plant is 450 man-rem/yr, including nonroutine events, based on operating experience.[84] While Applicant's calculations for St. Lucie Unit No. 1 were cited as 75 man-rem/yr,[85] nevertheless the figure of 450 man-rem/yr was adopted by the Staff in the FES. Both the Applicant and Staff used 450 man-rem/yr in calculating genetic effects of radwaste in an effort to be conservative. The Board expects the Applicant to apply the principle of keeping occupational exposures, as well as exposures to

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[75] See note 32, p. 4.

[76] Id., p. 7; Tr. 2848-49.

[77] Thiessen and Linnemann, note 20, p. 3, Tr. 2175; Bender, p. 3, Tr. 2560; Morgan Tr. 3106, 3121, 3139, 3157.

[78] See note 32, p. 2; Tr. 2880, 3088.

[79] Applicant's Exhibit 2.

[80] SER following Tr. 3344.

[81] See note 32, p. 3; Tr. 2843.

[82] Tr. 3100-02.

[83] See note 32, p. 3; Tr. 2895, 2902, 3103, 3126.

[84] FES p. 5-22.

[85] Tr. 2481, 2902.

the general population, "as low as practicable". The Board concludes that 75 man-rem/yr is a reasonable, practicable level and hereby makes it a condition of this license.

29. In connection with his testimony on waste treatment systems, Applicant's Witness Rodger was asked by the Board as to whether he had considered the possible effects of using recycled plutonium fuel in St. Lucie Unit No. 2.[86] There is no testimony of record that such fuel will be used in St. Lucie Unit No. 2. The question simply arose in the context of a discussion about the leakage of radioactivity into the primary coolant and was answered by the witness to the satisfaction of the Board.[87] Subsequently, Intervenor's counsel sought to raise a new issue in this proceeding of whether the Applicant intended to use recycled plutonium in St. Lucie Unit No. 2.[88] The Board ruled that the issue was not relevant to the application under review, was not germane to the proceedings, and was being raised for purposes of delay only.[89]

30. The Board considered it significant that witnesses for the Applicant and Staff agreed that the expected radiological effects do not affect the cost-benefit balance for St. Lucie Unit No. 2[90] and that Intervenors' expert Witness Morgan believes that, even with the alleged risks, the expected benefits outweigh the expected costs.[91]

31. Based on the evidence of record, including contradictory testimony as to Contentions 1.1, 1.2 as amended, and 1.2.1, the Board finds that radioactive effluents from the proposed St. Lucie Unit No. 2 will be "as low as practicable" and that any such releases will not materially affect the cost-benefit balance in favor of the proposed facility.

Contention 1.3

Contention 1.3 reads as follows:

Whether sufficient need for power will exist to justify the present construction of the facility, particularly whether:

(a) the projected reserve margin without the facility would be adequate;

(b) conservation measures by consumers due to changes in the rate structure designed to reduce the demand for electricity including peak pricing and higher overall prices will eliminate or postpone the need for the facility;

[86] Tr. 2181, 2187.
[87] Tr. 2164-66; Tr. 2181-82, 2187-88.
[88] Tr. 2855-64, 2869-78, 3053-55, 3362.
[89] Tr. 2856-57, 2872-73, 3035, 3054-55, 3362.
[90] See note 20, p. 1; note 21, p. 4; note 22, p. 7; Bender, p. 9.
[91] Tr. 3127, 3174.

(c) whether or not there shall occur in the future a slowed rate of economic growth in Florida, which would reduce the need for power;

(d) whether there are power pools for Applicant to join; and if so, by joining such pools, whether its reserve needs would be diminished sufficiently to eliminate the need for the facility;

(e) conservation of electricity by Applicant's customers due to increased rates presently occurring.

32. As to Contention 1.3(a), forecasts of reserve margins in 1980 were made by Witness Bivans and Witness Beyer. Witness Bivans testified that demands from 1957 through 1973 have increased at the rate of 13 to 14% per year. This is approximately twice the national average. The rate first projected by the Applicant for the period up to 1981 was an 11.3% annual rate of growth of peak demand. Recent changes in patterns of energy use and costs make it necessary to assume that historical patterns would not continue. Plans were therefore developed for additional generating units which will accommodate a band of growth rates of from 7 to 11%.[92] The 7% minimum growth rate figure took into consideration all adverse factors affecting growth.[93] It was Mr. Bivans' testimony that a reduced rate of growth would not affect FPL's need for St. Lucie 2 as a base load generating facility at the earliest possible completion date.[94]

33. Witness Beyer testified that he had conducted an analysis ot the Applicant's system from records supplied by the Federal Power Commission and the Southeast Electrical Liability Council and had made a loss-load probability study of the Applicant's system. Witness Beyer testified that the Applicant's system as planned with St. Lucie Unit No. 2 would experience a loss of load of 1.10 hours during a peak week in 1980. Without the capacity of St. Lucie 2, the loss-load would be increased to 3.46 hours during such a peak week. This loss of load period was in excess of the Applicant's operational criterion. Thus Beyer concluded that the added capacity of St. Lucie 2 was needed to provide adequate reserves.[95] Intervenor provided no direct case on this subject but through cross-examination showed that in July 1974 the rate of increase per kilowatt-hour of sales was only 1% greater than in the previous year.[96] Applicant's Witness Bivans testified that, in June, July, and August of 1974, actual consumption was less than in the previous year, but in March, April, May, and September it had been slightly above the previous year. Thus the net increase for 1974 would be approximately 2%.[97] For the 2% cumulative

[92] Witness Bivans following Tr. 383, p. 7.
[93] Id., p. 9.
[94] Id., pp. 15, 16.
[95] Witness Beyer following Tr. 604 at pp. 16, 17.
[96] Tr. 406.
[97] Tr. 399, 404, 408-409.

increase in sales, there was a corresponding 5.2% increase in peak load. Questioned as to why a minimum peak load projection of 7% and a maximum projection of 11% could be justified when the 1973 to 1974 increase was only 5.2% in peak load and approximately only 2% in gross kilowatt-hour sales, Bivans testified that the summer of 1974 figures were anomalous because of unusual weather conditions. An additional 200 megawatts peak load would have been required if the weather had been normal. He also indicated that there were 7% more customers in 1974 than in 1973 and thus the minimum 7% figure could be justified even in terms of the 1973-1974 data.

34. The Board after reviewing the entire record, and based thereon, is persuaded that projected reserve margins would not be adequate without the proposed facility. Using even the most conservative projected demand forecasts, the Board is convinced that the St. Lucie 2 unit is required to meet needs in the year 1980.

35. As to Contention 1.3(b), Applicants and Staff presented direct testimony. Applicant's Witness Guth made a detailed projection of FPL's needs for both commercial users and residential sales. His projections took into consideration price elasticities and projected incomes, appliance saturation, expected saturation trends, and competitive fuels.[98] His projected demand, considering residential, commercial, and industrial sales, was from 7.3 to 11.1%. This agreed with the range set forth above by the Applicant.[99] Witness Guth testified that a refinement in the rate structure would not have a major impact upon load. Adjusting the rates upwards during peak periods for peak period usage in his opinion would have more impact upon total energy sales than on systems loads and therefore would be ineffective in improving load factors.[100] Witness Guth argued that all available evidence suggested that demand during peak periods was less responsive to price than demand during off-peak periods. Thus Guth forecasts that the chances for a deteriorating average load factor through 1980 were much greater than chances for an improving load factor.[101]

36. Staff Witness Uhler felt that there were possible shortcomings in the present rate structure but that the concept of peak load pricing needed scrutiny.[102] Uhler, however, concluded that consumer responses to changes in rate structure are not yet well known; the effects upon demand are speculative.[103] He testified that pricing effects always involve a period of lag between a decision of a price change and consumer response.[104]

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[98] Witness Guth following Tr. 381, pp. 1-48.
[99] Id., p. 48.
[100] Id., p. 50.
[101] Id., pp. 49, 50.
[102] Testimony of Witness Uhler following Tr. 601, p. 32.
[103] Id., p. 34.
[104] Id., p. 27.

37. Applicant's Witness Gerber testified that climatic conditions and need in Florida were such that peak load pricing would not likely be effective in this situation although it might be in other localities.[105] Gerber pointed out that, since peak periods of usage are extended over so many hours of the day and so many days of the year in Florida, there is no place to shift use. Even though some demand might be shifted away from the peak period, the same energy would be required and the effect would result in a higher load factor, which would justify even more base load nuclear capacity. Gerber also concluded that the uncertainties associated with peak load pricing, the cost of metering, the problem of communication to the consumer of information regarding the peak, and other unresolved problems would prevent implementation of such a policy at this time.[106]

38. After considering all the evidence of record, the Board concludes, based thereon, that a rate structure change would be ineffective at this time towards materially reducing demand.

39. Contention 1.3(c) was addressed through direct testimony by Applicant Witness Gerber and Staff Witness Uhler. Their responses indicated that a slower rate of economic growth in the future would not reduce the need for power. Witness Gerber cited the following reasons for the past growth of electricity in Florida: (1) a rising standard of living, (2) population growth, (3) rising levels of economic income, and (4) general economic expansion.[107] Witness Gerber, however, did not believe that the past growth rate in the use of energy would persist in the FPL area in 1980. He projected a basic growth thrust for the FPL area though at a more moderate rate than in the past.[108] The basis for the continued growth in demand was the 3.78% annual population increase, of which 3.35% was accounted for by migration. He also projected continued population growth because of continued commercial and industrial employment opportunities, as well as the expectation of increased migration of people with retirement incomes. The rate of growth of population between 1970 and 1980 was projected to be 3.3% and was projected to decrease to 2.5% in the succeeding decade.[109] Gerber projected that real personal income in the 1969-1980 period would increase at the rate of 6.1% in Florida vs. a 4% nationwide average. Similarly higher manufacturing earnings were projected for Florida. The effect of these economic changes would be that the projected annual increase of power sales of FPL would decrease from the 14.5% between 1950 and 1973 to an annual average growth rate of 10.1% between 1973 and

[105] Testimony of Witness Gerber following Tr. 461, p. 28.
[106] Id., pp. 28, 29.
[107] Gerber, pp. 10, 11.
[108] Id., p. 18.
[109] Id., p. 13.

1980.[110] Gerber felt that the present economic recession, the high interest rate, and unemployment would cause a temporary decline in real income; that such adverse economic conditions would not persist long term; and that it would be unreasonable to base a projection of 1980 energy requirements upon a continuing recession.[111]

40. Staff Witness Uhler's testimony was in substantial agreement with the testimony of Witness Gerber, i.e., that economic conditions in Florida would not reduce the demand for power sufficiently to postpone the need for the facility. He forecast higher than average real per capita incomes in Florida.[112] Expanded population, personal income, and economic activity would not substantially decrease the demand for power. Although there are offsetting factors (life-styles, energy prices, and national policies) that tend to cloud forecasts, based on historic relationships, Uhler believed the data indicated an economic expansion that will be associated with a significant increase in demand for electric services.[113]

41. While Intervenor presented no direct testimony on this contention, he attempted to show through cross-examination that the present recession together with the declining tourist industry in southeastern Florida would have some impact upon future power needs. Witness Uhler's testimony, however, indicated that, although tourist expenditures were down from the previous winter,[114] there were definite indications of expanded economic activity in Florida.

42. Based on the uncontradicted preponderance of evidence in the record, the Board finds no evidence of a slowed rate of economic growth which would postpone need for the Florida plant.

43. As to Contention 1.3(d), the Board noted that Applicant's Witness Bivans testified that, although there is a present possibility for load sharing within the State of Florida, load sharing with other states must await transmission network ties to units in Georgia. Although such ties have been proposed, even if such a large high voltage connection grid were completed, it would only reduce to a small degree the requirements for daily operating reserve and would not reduce the requirement for installed reserves.[115] Bivans testified that the numerous interconnections with other utilities in the State of Florida operate on a voluntary basis, that standby reserves are available in an emergency, but that there are no formal power pools within the state. The out of state

[110] Id., p. 18.
[111] Id., p. 21.
[112] Uhler following Tr. 601, p. 20.
[113] Id., p. 23.
[114] Tr. 624.
[115] Witness Bivans following Tr. 383, p. 20.

interconnection is through an intermediary (Florida Power Corporation) which has interties with the Gulf Power Company.[116] Witness Bivans testified that he was actively pursuing additional interconnections with Georgia Power Company but that such interties would not reduce the reserve requirements.

44. Intervenor through cross-examination of Witness Bivans explored the possibility of purchasing power from companies both within and outside the State of Florida.[117] However, Bivans testified that no firm power was available for sale from these companies at the present and that only emergency power could be purchased from other utilities.

45. While it was apparent that FPL had made little or no effort to interconnect with other utilities for the purpose of sharing power, nevertheless the Board finds no indication from the testimony or cross-examination that joining other power pools was a viable option at the present time which would eliminate the need for the proposed facility.

46. Contention 1.3(e) related to the influence of recent price changes and surcharges that were made in Florida to compensate for the increased cost of fuel oil following increased oil price by the oil cartel. It was addressed by Applicant's Witnesses Guth and Gerber and by Staff Witness Uhler. Witness Uhler's testimony indicated that it is possible to demonstrate changes in consumption in Florida resulting from the price increase imposed because of the cost of residual fuel oils. Uhler's analysis of the Florida data, however, indicated that 10% expansion in sales took place in spite of a 10% increase in price. His analysis also indicated that there was some growth in sales even though prices were 30% higher.[118] Thus, short term data available from Florida does not support a conclusion that conservation will reduce need for the plant.[119]

47. Witness Guth did not analyze directly the effect of the recent surcharge in Florida upon demand. Although Guth stated that there is no firm evidence on the point where the magnitude of price elasticity will be different in periods of rising real prices, he suggests that a range of price elasticity for net usage could be from −0.5 to −0.7.[120] However, considering other factors, such as income elasticity, annual average changes in electricity price, and personal income, Guth concludes that there will be a minimum rate of growth in net usage per customer in the amount of 0.5% annually; a most optimistic case would give a 5.0% annual increase in the rate of growth of customer usage.[121] Thus Guth predicts that the net effects of price elasticity will be partially overcome by other

[116] Tr. 533.
[117] Tr. 536, 537.
[118] Uhler, p. 40.
[119] Id.
[120] Guth, p. 29.
[121] Id., p. 32.

considerations.[122] Witness Gerber testified that, although some conservation may result from increase in prices, more efficient appliances, better insulation, and reduced lighting standards, such opportunities for savings are limited and would be realized gradually over a period of years. However, he did not feel that energy prices would tend to lower the rate of growth of energy consumption in view of the growing population and rising income levels which bring about a trend in the opposite direction.[123]

48. Apparently only Staff Witness Uhler had looked at the most recent FPL data after imposition of surcharges resulting from the increased price of residual fuel oil from the oil cartel. Although price appears to have affected demand, there is no clear-cut evidence that in the long run there would be significant decrease in the demand. In response to Board questioning, Witness Guth on the other hand testified that it is too early to study the effects of the fuel adjustment upon demand since it was complicated by inflation and other short run problems.[124] Thus, although there was some doubt as to the ultimate effect of price increases, the Board finds no material showing that the effect of such increases would be sufficient to obviate the need for the St. Lucie 2 plant.

49. Generally with respect to Contention 1.3 the Board finds that the specific subcontentions were in many ways made moot by uncontradicted testimony offered by Witnesses Gerber and Uhler which indicated that recent increases in price of competitive fuels for nuclear generating plants (a) make nuclear fuel the most economical choice, and (b) make nuclear fuel more certain, considering recent difficulties experienced in obtaining residual fuel oils. Witness Gerber testified that the St. Lucie Unit No. 2 nuclear plant could be justified on the basis of fuel savings by substitution for residual oil fired generation, even if the increased capacity of this unit were entirely surplus. This testimony thus makes moot all arguments regarding the precise percentage rate of increase in demand for Florida during the period of construction of St. Lucie Unit No. 2. Gerber testified that substitution of nuclear fuel would result in $140.2 million savings in excess of the annual fixed charges for the unit even if the capacity were entirely surplus.[125] During cross-examination and in response to questions by the Board, Gerber reduced the projections of savings by approximately $19 million due to increase in capital cost of the plant not taken into account in his prepared testimony.[126] Witness Uhler testified that utilities such as FPL which are heavily dependent upon residual fuel oil are in a unique position in regard to the construction of nuclear power plants since the

[122] Id., pp. 31, 32.
[123] Gerber, pp. 22, 23.
[124] Tr. 568.
[125] Gerber, p. 26.
[126] Tr. 579.

availability of such residuals is not secure.[127] Uhler testified that the Presidential Message to Congress had specifically said that new base load plants should not burn oil.[128] Uhler further testified that the supply of natural gas which FPL receives from United Gas pipeline experienced the most serious curtailment problems of all jurisdictional pipelines of the Federal Power Commission.[129] He further testified that the uncertainty of coal cleanup technology and the fact that FPL has little experience in burning coal would restrict the possible alternatives open to FPL at this time.[130] Questions directed by the Board to Witness Uhler reinforced the suggestion that there was a possibility that oil would not be available to base load units.[131] Thus, with respect to competitive fuel availability and cost, the Board finds that there appears to be a continuing strong justification for construction of St. Lucie Unit No. 2 as a nuclear plant.

Contention 1.6(c)

50. Contention 1.6 relates to alternative energy sources, alternative sites, and alternative ultimate heat sinks. Contentions 1.6(a) and 1.6(b), dealing with alternative energy sources and sites, were summarily dismissed.[132] Contention 1.6(c) states:

> Whether the Staff's Final Environmental Statement has sufficiently considered alternatives to the proposed action including:
>
> (c) alternative ultimate heat sink methods such as auxiliary ocean intake or wet or dry cooling towers using salt or fresh water or treated sewage effluent.

51. The Applicant[133] and Staff[134] presented testimony on alternative ultimate heat methods. One alternative is an auxiliary ocean intake. Staff Witness Young noted that an event that would block the main intake canal would also block the auxiliary intake if of similar design.[135] Wet and dry cooling towers were found by the Staff to cost more and to have susceptibility to storm damage over the proposed system.[136] The Staff considered a cooling lake and found the environmental impact on the island to be greater than the

[127] Tr. 636.
[128] Tr. 635.
[129] Id.
[130] Tr. 636.
[131] Tr. 643, 644.
[132] See paragraph 5, *supra*.
[133] Testimony of J. R. Fotheringham following Tr. 2086.
[134] Testimony of John Young following Tr. 2087.
[135] Id., p. 2.
[136] Id., p. 3.

proposed design.[137] The use of treated sewage as a coolant was considered by both Applicant and Staff witnesses who agreed there is no source for such sewage.[138] In addition to a higher economic cost, Witness Fotheringham considered that the environmental costs of a 1200 ft. jetty and a 400 ft. wide channel would be excessive.[139] He also testified that towers would require more space, with the attendant environmental effects, than the present system which is going to be used by Unit No. 1 in any event.[140] Following review of the entire record on alternatives considered, the Board finds that the Applicant and Staff have considered alternative heat sink methods. The Board concludes that the proposed system using Big Mud Creek is the best alternative both from the standpoint of cost and environmental impact.

Contention 2.1(b)

Whether the proposed site meets the requirement of 10 CFR Part 100 as to meteorological conditions including:

(b) whether hurricanes pose such a severe threat to the safe operation, due to their accompanying land erosion, high winds and storm surges, and their resultant effect on the site, its equipment, buildings and the intake water canal and emergency cooling canal and means of ingress and egress, that the site is unsuitable.

52. All three parties presented direct testimony on this contention. In weighing and evaluating conflicting evidence, the Board took into consideration the fact that each of the witnesses offered had different backgrounds and different expertise. Staff Witness Lewis G. Hulman is primarily a hydraulic engineer with experience in hurricane damage from a hydrologist's standpoint with an understanding of water movements, soil erosion, erosional effects, and surges. Applicant's Witness Fei-Fan Yeh also has a background in hydrological engineering and is well qualified to make an assessment of erosional damage arising from waves and water movements. However, the Board found that Dr. Yeh had a limited understanding of hurricane behavior and was not an expert in hurricane characteristics. Since Witnesses Hulman and Yeh had limited backgrounds in meteorology, they did not appear qualified to use an analog methodology in predicting hurricane intensity and effects. Intervenor's Witness Arnold L. Sugg, on the other hand, obviously had widespread experience as to the meteorological characteristics of hurricanes and their wind speeds and surge heights, and he has had practical experience witnessing erosional effects. By

[137] Id., p. 4.
[138] Id., p. 4; note 128, p. 4.
[139] Note 133, pp. 2, 3.
[140] Id., p. 4.

virtue of his experience with past hurricanes in Florida, Witness Sugg is qualified to make some general judgments and predictions of hurricane damage; however, the Board gave little weight to Mr. Sugg's testimony on assessment of rates of erosion damage or the specifics of soil, vegetation, and beach and water conditions relating specifically to the St. Lucie site.

53. The maximum probable hurricane (PMH) used in the analysis of the Staff and Applicant is a hypothetical storm defined by certain criteria furnished by the U.S. Department of Commerce.[141] This storm has intensity characteristics (central pressure) lower than the other "great" hurricanes that have struck the United States. As regards central pressure, it is slightly more intense than Hurricane Camille and slightly more intense than the Labor Day hurricane of 1935 at Key West. In assessing the effects of the maximum probable hurricane, Staff and Applicant witnesses made assumptions regarding the trajectory of the storm in relation to the coastline which would maximize the storm surges, wind, and wave activity.[142] On cross-examination, the Intervenor's witness first testified that the maximum probable hurricane postulated by the Applicant was more intense than most of the "great" Florida hurricanes with the exception of Hurricane Camille.[143] Later during cross-examination, Witness Sugg stated that the difference between the maximum probable hurricane and Hurricane Camille was of little or no significance.[144] Thus, there appears to be little difference in the opinion of experts as to the intensity and trajectory factors used in the calculations of the Applicant and Staff, and there are really no facts in dispute.

54. There was no direct testimony offered by either the Staff or the Applicant upon the effect of the duration of possible hurricanes in the vicinity of St. Lucie 2. This question arose during cross-examination of Applicant's Witness Yeh by the Intervenor and through direct and cross-examination of Intervenor Witness Sugg.[145] The maximum probable hurricane hypothesized in the Intervenor and Staff testimony did not consider the possibility of a hurricane stalling in the vicinity of the plant so that storm surge, wave, and wind erosional effects would persist for several days. Witness Sugg testified that storms can stall and remain approximately stationary for as long as 4 days.[146] He further testified that, when a tropical storm decelerates or slows down in this way, it increases in intensity, and he cited examples within his experience of tropical storms which had performed in this way and ones which had essentially

[141] Witness Hulman following Tr. 1688, pp. 5-6.
[142] Hulman following Tr. 1688, p. 6; Yeh, following Tr. 1838, p. 2.
[143] Tr. 2050.
[144] Id.
[145] Tr. 1915, 1922, 2069-72.
[146] Tr. 2069, 2070.

had a loop configuration whereby they struck a given area twice.[147] Thus, Sugg's testimony indicated that hurricanes could stall offshore in the warm water of the Gulf Stream, could increase in intensity,[148] and could thereby affect the St. Lucie coastline for a period up to 4 days. During such time winds would be of gale, and possibly of hurricane, force category.[149] The Board could find no evidence in the testimony of Witness Hulman or of Witness Yeh to indicate that there had been any consideration given to the stalled hurricanes hypothesized by Witness Sugg. Witness Yeh testified that, if the maximum probable hurricane stalled, the wind velocity would decrease.[150] This was in direct contradiction to a statement by Witness Sugg who had testified that a first rule in hurricane forecasting was that deceleration of hurricanes was accompanied by an increase in intensity.[151] Examination of Witness Yeh by cross-examination and responses to questions of the Board indicated that this witness had little or no direct knowledge of stalled hurricanes and hurricane trajectories and speeds[152] but seemed to have relied heavily upon other sources of information for his testimony in these areas. Under examination, he stated that a hypothesized, stalled hurricane could be more damaging than the probable maximum hurricane used in his analysis.[153] Since Witness Hulman did not directly address this matter, the testimony of Witness Sugg appeared to the Board to be more responsive on this point.

55. As to the question of hurricane surges, the Applicant estimated the maximum surge level for the PMH to be 16.2 ft. mlw.[154] while the Staff's surge estimate was 16.7 ft. mlw.[155] Witness Hulman testified that, with severe breaching of the island in several places, wave run-up on the ocean side of the plant island would reach a maximum level of +22 ft. mlw.[156] He further testified that the Applicant had been requested to provide for sandbagging and stop-log closure structure to minimize any potential leaking to the +22 ft. level.[157] Witness Yeh testified that the maximum peak storm surge and wave run-up with a maximum PMH storm would not exceed +19 ft. mlw. but that all safety features would be protected to the +22 ft. mlw.[158] His calculation of

[147] Tr. 2070.
[148] Tr. 2069.
[149] Tr. 2071.
[150] Tr. 1911, 1936.
[151] Tr. 2069.
[152] Tr. 1909-1915, 1936-38.
[153] Tr. 1909.
[154] Yeh, p. 2.
[155] Hulman, p. 8.
[156] Id., p. 11.
[157] Id.
[158] Yeh, p. 2.

surge run-up assumes a tide of 3.7 ft. and an initial surge of 1.5 ft. for a combined total peak of PMH surge of 16.2 ft. mlw. Thus the Staff's witness and the Applicant's witness differ somewhat in the calculated elevation of water and wave run-up during the maximum probable hurricane. Witness Yeh explained that the difference in these calculations was due primarily to the fact that the Staff had not taken all topographic conditions into consideration in calculating a 22 ft. mlw. wave run-up. His calculations of 19 ft. reflected the "real" topographic configuration of the area.[159]

56. Witness Sugg testified that Hurricane Camille had surge levels at Pass Christian, Miss., of 24.6 ft.[160] Witness Hulman also testified that the Hurricane Camille at Pass Christian had a surge level of 23 ft. with a run-up to 25 ft.[161] However, further testimony and cross-examination indicated that surges of this height were not possible in the St. Lucie area because of the configuration of the Continental Shelf. In the case of Camille striking the Mississippi Gulf Coast, the shallow offshore shelf accounts for the extremely high surge height.[162] Witness Sugg agreed that the shallowness of the Continental Shelf was a factor in determining surge height.[163] He acknowledged that, all other things being equal, the surge height at Hutchinson Island would be less than at the Texas Gulf Coast.[164]

57. Thus, no substantial evidence was developed in the record to indicate that the storm surges would exceed the level recommended by the Staff for protection of the plant (+22 ft. mlw.). Records of higher surges appeared to have occurred only in areas with much shallower shelf configurations than Hutchinson Island. In view of the substantial evidence in the record in support of the designed protection level, the Board concludes that the hurricane surge analysis is adequate.

58. With respect to beach and island erosion factors, all expert witnesses (Hulman, Yeh, and Sugg) agreed that severe hurricanes would breach the dune and erode the area between the ocean and the plant site. Witness Hulman testified that the dune would be breached and washed away and that much of the sand between the present waterline and plant nuclear island would virtually disappear in a severe hurricane.[165] Witness Yeh hypothesized a 6-hour erosional attack on the dunes by waves which had a height varying from +8 to +14 ft. and calculated an average erosion of 50 cubic yards per foot of shoreline. This would

[159] Tr. 1846.
[160] Sugg following 2000-B, p. 1.
[161] Tr. 1711.
[162] Tr. 1713, 1714.
[163] Tr. 2027.
[164] Id.
[165] Tr. 1690.

bring about 150 feet of horizontal recession with a surge level of 16.2 ft.[166] He believed there would be virtually no foreseeable erosion of the plant island.[167] Yeh further testified that there would be little erosion at the plant elevation level (18 ft.) because the wave energy would be dissipated when the wave was broken at the highway.[168] There would be little energy to create erosion in the area near the plant. His calculations indicated that a 10 ft. wave would erode approximately 5 ft. of material from a 150 ft. strip beyond highway A1A. Witness Yeh's calculation of the erosion that would take place beyond the highway with 16.2 ft. surge (150 ft. horizontal recession) he believed to be conservative. However, his testimony indicated that (a) there was a difficult scale problem in making such estimates;[169] (b) only erosion arising from wave run-up would occur beyond the 150 ft. recession behind the roadway; (c) flowing water at the parking lot would be approximately 2.3 ft. deep;[170] and (d) wave run-up beyond the 18 ft. level of 1 ft. would create flooding at the perimeter of the plant island.[171] In cross-examination, Witness Yeh considered a hypothetical storm which had stalled in the area so that there was flow around the plant island at the hypothesized surge level (16.3 ft.). He estimated that this would give a water depth near the island of 2 to 3 ft. and, with a long duration storm, would give 1 to 2 ft. of scour. This would not bring about cutting of the island.[172] Witness Hulman indicated that, with a breach of the island at Big Mud Creek, there would be erosion at the vicinity of the site[173] but that even with such a breach the nuclear island would not be eroded to the extent that would constitute a threat to any of the safety related structures.[174]

59. In view of the entire record, including consideration of conflicting evidence therein, the Board concludes that ample evidence exists to indicate that the hypothesized maximum probable hurricane would not create sufficient erosion to threaten the plant and safety related structures even though water completely covered the island. However, the Staff apparently did not consider the situation postulated by the Intervenor's Witness Sugg (erosion taking place for a period of 4 days). Thus there remains an area of uncertainty concerning damage in a situation in which several days of erosion from a maximum probable hurricane stalled offshore followed by this hurricane moving inland and producing a wave run-up to the height proposed by Hulman (22 ft.). However,

[166] Yeh, pp. 3, 4; Tr. 1873.
[167] Yeh, pp. 3, 4.
[168] Tr. 1877.
[169] Tr. 1872, 1873.
[170] Tr. 1875.
[171] Tr. 1878.
[172] Tr. 1922.
[173] Tr. 1704.
[174] Id.

the Board concludes that, even with the most severe hypothesized situation, structures protected to +22 ft. would not be threatened beyond that indicated by analysis and calculations already completed. With respect to the integrity and safety of the plant itself, the Board is persuaded by Witness Hulman's testimony that safety would not be threatened even with breaching of the island and a wave run-up of 22 ft. mlw. if the Staff request that the Applicant take certain measures to minimize inleakage was carried out.[175] However, since the Staff did not formally consider stalled hurricanes and since additional protection may be required for safety related structures in the event of this type of storm, the Board directs the Staff and Applicant to specifically address the question of stalled hurricanes and their possible safety related effects on St. Lucie No. 2 at the health and safety hearings.

59a. The testimony of Applicant Witness Harris indicated that there would be no problems of ingress or egress from the plant site in the event of severe hurricanes since adequate hurricane warnings would be available to the facility. With warning, the Applicant could adequately staff the plant so that it could be kept in operation even though ingress and egress to facilities were inhibited.[176] Applicant Witness Fotheringham testified that ocean intake structures and emergency cooling water canal would be able to withstand maximum impact of a PMH and that emergency shutdown requirements could be met.[177] In reaching these conclusions, the Board expressly requires hereby that the recommendations of the Staff relative to this matter be made part of the technical specifications for any construction permit authorized pursuant to this decision. Subject thereto the Board finds that the site meets the applicable requirements as to meteorological conditions.

Contention 2.2

Whether the proposed site meets the requirements of 10 CFR Part 100 as to population density and use characteristics of the site environs, including:

(a) whether Applicant and Staff have adequately considered present population and future demographic change near the site, particularly:

(1) whether increased population of Hutchinson Island resulting from high-rise, high-density condominiums and resort hotel development with larger tenant capacities;

(2) whether within the low-population zone (LPZ), real estate developments and subdivisions on the mainland three to five miles away from the proposed site which are currently more populous than Staff and

[175] Hulman, p. 11.
[176] Harris, p. 3.
[177] Fotheringham following Tr. 1839, p. 2.

Applicant estimate and whether this will result in the very high population density within the next decade far in excess of Applicant's population projections in the Environmental Report (ER) and Preliminary Safety Analysis Report (PSAR);

(3) in nearby cities of Stuart, Jensen Beach, White City, and Fort Pierce within 10 miles of the proposed site;

(b) whether Applicant's presentation in the PSAR, Figure 2.1-2, an aerial photograph of Hutchinson Island, fails to include the entire area from five to ten miles from the proposed site and the development occurring there, and whether such information is necessary to accurately assess site suitability;

(c) whether the demographic studies performed for Applicant by First Research Corporation of Miami are inaccurate and misleading and underestimate the high population in the site environs including the LPZ;

(d) whether there is a reasonable probability that appropriate measures could be taken in the event of an accident to protect residents including evacuation of LPZ personnel, particularly whether the single, two-lane highway, A1A, on Hutchinson Island;

(1) is sufficient for evacuation and access for emergency equipment;

(2) could be separated by a storm or accident at the site since the road bisects the site which would result in division and splitting up of emergency evacuation and safety efforts;

(3) would cause highway A1A traffic to bottleneck at the single bridge at each end of the island, diminishing the possibility of escape from an island in an emergency.

60. Some of the testimony on this contention was conflicting as to several aspects of population projections. In addition, and as more fully discussed below, the Final Environmental Statement was found to contain erroneous data. It was subsequently corrected with the addition of supplemental testimony from the Staff upon a showing that the error was inadvertent and did not materially change the cost benefit balance as presented in the FES.

61. Staff Witness Dr. Emile Bernard assembled available data on populations and relied on available sources to arrive at future population figures.[178] By education, Dr. Bernard is a physicist but has been employed recently (relatively short period) by the Regulatory Staff in a capacity that includes population surveys and forecasts relating to proposed nuclear power plants.[179] He was assigned in this capacity to the Staff's evaluation of the proposed St. Lucie facility after the Intervenor had advised the Staff of what appeared to be errors

[178] Bernard testimony after Tr. 904, pp. 5-7, Tr. 905; 1281; 1443, 2711.

[179] Tr. 966, 989, 995.

in the FES and ER.[180] Dr. Bernard provided both fact and opinion testimony. The Board gave considerable weight as to the former; however, since he had little or no experience in making regional planning studies, and was not familiar with the usual methodology used in planning and projections, the Board gave less weight to his opinions on population projections. Applicant's Witness Moore[181] based his testimony on relatively extensive experience over many years in population forecasts, and his familiarity with other projections of population levels in the LPZ and the surrounding area to the year 2000. Mr. Moore had made numerous short range forecasts for various business enterprises and appeared to have considerable practical experience in this area. The Board was not as persuaded by his opinions on long range trends, which tended to extrapolate on past experience only. Intervenor Witness Schmidt,[182] a professional urban and transportation regional planner, was found by the Board to be well qualified to assess the likelihood of population levels in the vicinity of the proposed St. Lucie 2 site. Witness Ament,[183] appearing under subpoena issued at the request of Intervenor, was, likewise, a professionally trained regional planner. In evaluating and balancing conflicting evidence presented by these witnesses, the Board considered the type of backgrounds needed to make judgments regarding the impact of future economic, social, and political changes upon growth and demographic data of any given area. Background in demography, transportation, economics, etc., all enter into the qualifications to make such predictions, as well as related experience, information obtained from state and local planners and public officials, and familiarity with Hutchinson Island and the adjacent area. The Board also considered the projected population levels up to the year 2020.[184]

62. The Board concludes that there is an honest disagreement among experts as to future populations in the vicinity of St. Lucie 2. The witnesses testifying on future population levels brought different skills, different viewpoints, and emphasized different sets of factors in making their projections. There is no clear-cut basis the Board can use for making a firm judgment as to which of the 3 population estimates is the more correct and which projection should be used in forecasting the population levels 40 years from the completion of the plant. Short term projections present few problems since agreement is sufficiently close among all three. It is with the long term projections that experts differ. The Board considered the most conservative judgments to have been those of Intervenor's Witness Schmidt. His projections were based upon projected

[180] Tr. 1466.
[181] Moore testimony (2.2(c)) following Tr. 764, pp. 2-3; Tr. 2967.
[182] Schmidt testimony following Tr. 1089, 1096.
[183] Tr. 1035-81.
[184] Tr. 1208.

constructions of known subdivisions up until 1990, followed by continuation of accelerated rate of growth of the area for an indefinite period, perhaps as late as 2020.[185] His forecasts were the most conservative (largest population) because he assumes (1) full occupancy, (2) high density on the island resulting from time-sharing of condominiums, and (3) exceptional growth in the area because of existing projections of transportation facilities and a transportation corridor in Florida, a concept currently considered by state planners.[186] Under questioning by the Board, Schmidt conceded that all long range planning (e.g., 20 years or more) relied very heavily upon judgments.[187] Such judgments based upon corridors and transportation theory and new ideas regarding cost sharing of condominiums, etc., must be balanced against Witness Moore's projections based upon past local experience but without indications that a full range of possible future economic or technological changes have been adequately evaluated. However, the Board after considering the entire record, concluded that the difference between these experts is largely moot in view of the testimony of Van Niel[188] and Bernard[189] and Moore[190] that projected improvements in plant design by the Applicant would allow the LPZ to be reduced to 1 mile. Even the most conservative population projections of Schmidt will meet the requirements of 10 CFR Part 100 as to population density and evacuation. A hypothetical doubling of Schmidt's projections for the LPZ apparently does not result in conflict with the applicable Commission regulations.[191]

63. With respect to Contention 2.2(d), the Board finds, as further set forth in paragraphs 69-74 below, that the Intervenor has failed to show that evacuation planning in the control area was inadequate. In view of the contention, the Board itself reviewed this subject matter but found no evidence that would persuade us to reach a contrary conclusion from that testified to by Applicant and Staff witnesses.

Contention 2.3

Whether the proposed site meets the requirements of 10 CFR Part 100 as to seismic considerations, particularly whether Applicant's seismic studies are incomplete, inaccurate, inadequate, including:

(a) insufficient evidence of lack of faults;

(b) no information on ten-foot plus offsets;

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[185] Tr. 1208, 1148.

[186] Tr. 1149.

[187] Tr. 1216-17, 1230.

[188] Tr. 1514.

[189] Bernard after Tr. 2722, p. 2.

[190] Tr. 3395.

[191] See footnote 189.

(c) bore holes too far apart to detect faults;

(d) bore holes choice improper, i.e., no history submitted on bore hole selections;

(e) failure to complete into St. Lucie County the study of the postulated Martin County fault;

(f) an attempt to adequately chronicle earthquake history for three hundred years;

(g) too few blow count samples in the area 70-feet to 85-feet depth strata and whether this area shows liquefaction potential;

(h) failure to consider dynamic interaction of units 1 and 2;

(i) emergency cooling canal slide blockage potential;

(j) whether a fault exists five miles from the site and whether the fault is a capable fault.

64. Contention 2.3 relates to the geological suitability of the site. The Staff and Applicant presented direct testimony; the Intervenor did not. As stated in the FES, the site is located on the east coast of the Florida peninsula which is the land area of a much greater extension of the North American continent called the Floridan Plateau, which Plateau lies within the Coastal Plain physiographic province. The Applicant performed various geologic investigations, including a detailed survey of published and unpublished literature with geologic and structural maps and well log data, contact with geologists familiar with the structure of the St. Lucie County area, a study of U.S. Department of Agriculture Soil Conservation Service aerial photographs and Satellite photographs, and various types of field work, which included geologic reconnaissance, borings, and continuous seismic reflection profiling.[192] The Staff reviewed the Applicant's information and results of the testing programs.[193] In addition, the Staff reviewed and evaluated information received from the Staff consultants, the U.S. Geological Survey and the U.S. Coastal and Geodetic Survey,[194] and contacted those individuals who had postulated that faulting may exist in the site area.[195] The Board concludes that the Staff review was adequate and that: (1) there are no geologic features in the site vicinity representing a hazard or potential hazard to the St. Lucie facility; (2) the lineaments are not fault controlled but are depositional in nature; (3) faulting does not pass within 5 miles of the site, and surface faulting is not a potential hazard in the site area; (4) the apparent offsets which were the bases for the faulting postulated by Bermes, Lichtler, and Vernon may be due to a monoclinal

[192] Testimony of Witness G. F. Sowers following Tr. 1625, p. 2.

[193] Tr. 1674-75.

[194] Id.

[195] Tr. 1678.

flexure in the underlying strata which parallels the coastline;[196] (5) that any faults which may exist do not offset upper formations and would not be post-Miocene in age,[197] and therefore would not be capable faults within the definition of 10 CFR Part 100, Appendix A. Accordingly, the Board finds that, from a geological standpoint, the St. Lucie site meets the requirements of 10 CFR Part 100 and is suitable for a reactor of the general size and type proposed by the Applicant.

65. Contention 2.3(f)(g) and (j) questions the seismological suitability of the site. The St. Lucie site is located on Hutchinson Island in an area that was covered with dense vegetation and mangrove swamps. The in-situ soils have been removed by the Applicant and replaced with dense compacted fill.[198] The Safe Shutdown Earthquake (SSE) for the St. Lucie site is based on the seismicity of the Florida Platform of the Coastal Plain province. The Staff reviewed all the historical earthquakes in the province and concluded that an earthquake would not be expected to cause an intensity at the St. Lucie site that will exceed intensity VI on the Modified Mercalli Scale.[199] The Applicant reviewed the earthquake history of the Southeastern United States and the West Indies. Records of the U.S. Geological Survey were reviewed, as well as individual publications concerning earthquakes affecting Florida.[200] In addition, the seismicity in Florida is low, which is reflected in the tectonic structures in Florida. Although faults exist, they are old, with smaller offsets than seen in seismically active regions. Thus, the historical record shows little seismic activity.[201] The Staff concluded that the available record of 400 years of earthquake history in the St. Lucie site region, while not complete relative to smaller earthquakes, does not contain any earthquake larger than the earthquake chosen for the SSE.[202] Accordingly, based on the evidence of record, the Board finds that the earthquake history has been adequately chronicled for the past three hundred years, that the site provided a suitable foundation for Category I structures, that an intensity of VI MM is conservative, acceptable, and feasible for the seismic design of the proposed facility, and that there are no foundation conditions which would preclude the use of site for the proposed St. Lucie 2.

66. Contention 2.3(g) raised the question of whether there were too few blow count samples in the area within the 70- to 85-ft. depth stratum and whether this area shows liquefaction potential. Applicants performed 30 borings

[196] Testimony of T. Cardone following Tr. 1669.
[197] Tr. 1678.
[198] Testimony of Dr. Bernreuter following Tr. 1669, p. 2.
[199] SER 2.5.2.
[200] See note 192, or 2.3.
[201] Id., Attachment A.
[202] Bernreuter following Tr. 1669, p. 5.

in the immediate plant area.[203] The Staff's review of the boring logs submitted by the Applicant as part of the site investigation program indicated a stratum of sand located approximately at elevation –70 extending to elevation –80 to –90 with relatively low blow counts. This suggests that the sands in the zone might be loose, i.e., have a low density. However, these low relative density materials are interfingered with materials having higher relative densities.[204] Only 3 samples from the low blow count zone were cyclically triaxially tested to liquefaction, and two of them were tested at such high relative densities that it is not possible to scale the data to the estimated in situ relative densities. After careful review of the soil conditions at the St. Lucie site, the Staff concluded that investigations additional to those already completed were not required to establish that liquefaction would not occur in the low blow count zone, because it has been the Staff's experience that extensive liquefaction should not be expected to occur in the zone of loose sands because of (1) the high confining pressures that exist at the depth of the layer resulting from the weight of the structures and the weight, due to the high finished grade (el. plus 18) of the compacted backfill; (2) the low intensity VI (MM) of the postulated SSE; and (3) the short time duration of the postulated SSE. The short time duration and low intensity of the postulated SSE are extremely important because the much denser sands above and below the low blow count zone will not have undergone enough significant increase in pore pressure. Therefore no gross foundation failures which could cause a hazard to Category I structures could occur.[205] The Board agrees with the Staff's analysis and finds that blow count sampling was adequate and that the site shows no potential for liquefaction.

67. Contention 2.3(i) raised the question of emergency cooling canal slide blockage potential. The Applicant has not shown that the soils inplace are not subject to liquefaction and slope failure along that portion of the emergency canal barrier and the far end of the switchyard. Therefore, the Staff has required a boring program to determine which zones should be densified, including (1) identification of any extensive zones of soft-sensitive clay that might exist which might cause slope failure or to cause the canal barrier to fail, (2) removal or other stabilization of these zones, (3) confirmation of results of the densification by borings located in appropriate locations, and (4) improvement of the canal barrier foundation. Only those slopes that contain a significant amount of material (high slopes), or are located in restricted areas such as around the emergency canal between Big Mud Creek and the Canal barrier, need to be

[203] Testimony of W. F. Mercurio (2.3(g)) following Tr. 1625, p. 1; PSAR 2.5.4.8, Fig. 2.5-15A.

[204] Bernreuter, p. 6.

[205] Bernreuter, p. 7.

improved because the postulated SSE intensity is too small to induce massive failure of the low slopes of this part of the canal.[206] The Staff has concluded that it is within the state-of-the art of soils engineering practice to engineer an acceptable ultimate heat sink,[207] and the Board agrees. Therefore the Board finds that liquefaction does not cause the site to be unsuitable, and while it is an unresolved safety issue it is not one which constitutes good cause for withholding limited work authorization.

68. In addition, the Board asked the parties to address the question of whether the functioning of the emergency cooling canal would be impaired or lost in the event of earthquake slide blockage occurring simultaneously with an extremely low tide.[208] The Staff concluded that if the Applicant agreed to improve foundation conditions so that the canal barrier and the slopes between the canal barrier and the plant would not fail, then this would remove the Staff's concern about slope failure and possible blockage mechanisms. The Board concludes that there will be no potential for blockage of the emergency cooling canal in the event of an earthquake even with an extremely low tide, provided that the in-situ soils are improved as recommended by the Staff. Accordingly the Board hereby requires that such improvement be made a condition of any permit or license that may be issued pursuant to this Decision.

Contention 3.2

Whether Applicant's emergency plan complies with Appendix E to 10 CFR Part 50 in that neither Applicant nor any state agency has adequately addressed the problem of adequate evacuation of the LPZ.

69. This contention together with Contention 2.2(d) related to whether the road and bridge network was adequate to accommodate evacuation of the population. The Applicant presented testimony by Mr. Kenneth Harris[209] and Mr. John E. Buchanan[210]; the Staff presented testimony by Mr. Richard Van Niel.[211] The Intervenor presented testimony through witnesses called by subpoena as follows: Mr. Wallace Johnson, Mr. Brian Tredray, Mr. Philip Thibedeau, Sheriff C. L. Norvell, Sheriff James D. Holt, and Capt. W. B. Oliver.[212]

[206] Bernreuter testimony following Tr. 1666, pp. 8, 9.
[207] Id.
[208] Board Question IIID., See Appendix B.
[209] Testimony of Kenneth Harris following Tr. 1310.
[210] Testimony of John E. Buchanan following Tr. 1310.
[211] Testimony of Richard Van Niel following Tr. 1310.
[212] Tr. 1414; Tr. 1517; Tr. 1540; Tr. 1568; Tr. 1592; Tr. 1602.

70. The Applicant introduced testimony which evaluated the feasibility of evacuation of the LPZ using A1A and found that 12 hours would be available for evacuation and that the entire LPZ population projected for the year 2000 could be removed in less than 5 hours.[213] The Regulatory Staff also evaluated the ability of highway A1A to accommodate evacuation of the LPZ and found it sufficient for evacuation and access of emergency equipment.[214] In addition the Staff analyzed the situation which would exist if the highway were cut by a major storm. The Staff found that a storm capable of breaking the highway would prompt protective measures, which may include evacuation prior to the storm's arrival. They determined that even if the highway were breached at the site, evacuation could proceed in one direction so that evacuation and safety efforts would not be impaired.[215] It was also noted that a storm of that magnitude would provide more favorable dispersion in the event of a radioactive release, thus making the necessity for evacuation less pronounced.

71. Applicant's Witness Harris[216] and Staff's Witness Van Niel[217] agreed that the question of whether a bottleneck of traffic would occur as people evacuated the island is not of significant concern, because the bridges are well outside the LPZ. In addition the Staff offered the opinion that appropriate traffic control would provide the necessary protective action objectives.[218] The South Florida Area Coordinator for the Division of Disaster Preparedness for the State of Florida testified that the feasibility of evacuation has been evaluated by those state and local agencies charged with that responsibility. There is no question but that an evacuation is feasible and can be carried out within the projected time frame for such actions.[219]

72. The Intervenor produced testimony by Wallace Johnson, Public Health Physicist, Department of Health and Rehabilitative Services, State of Florida, who noted that his department has promulgated a Radiological Response Plan, which has been reviewed by various agencies, including the AEC Regulatory Staff.[220] In Mr. Johnson's professional opinion, the appropriate state agencies have in fact adequately addressed the problem of evacuation of the LPZ as well as other areas,[221] and in the official position of the Division of Health, there is in fact a reasonable probability that appropriate protective measures could be

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[213] See note 209, p. 7.
[214] See note 211, p. 4.
[215] Id.
[216] Harris following Tr. 1310, p. 8.
[217] Van Niel following Tr. 1500, p. 5.
[218] Id.
[219] Buchanan following Tr. 1310, p. 5.
[220] Intervenor's Exhibit 3 at p. 4.
[221] Id., p. 10.

taken in behalf of occupants within the five mile radius or at greater distance if required.[222]

73. Intervenors Witness Mr. Brian Tredray, Martin County Civil Defense Coordinator, familiar with and presently involved in the preparation of the evacuation plans, testified that evacuation for a hypothetical 37,500 persons, all located south of the plant in the LPZ, could be accomplished in 3.5 to 7 hours.[223] Philip Thibedeau, Civil Defense Director for St. Lucie County, also called by Intervenors, testified that he was involved in preparation of the evacuation plan, that the plan was adequate, and that evacuation could and would be accomplished.[224] C. L. Norvell, Sheriff of St. Lucie County, called by Intervenors, testified that he would respond, that in his opinion evacuation of the LPZ would be presently feasible, and that evacuation of future increased population in the LPZ would also be possible due to increased manpower, vehicles, and road facilities.[225] James D. Holt, Sheriff of Martin County, called by Intervenors, stated that his department would be able to assist and accomplish evacuation of this area,[226] and Captain W. B. Oliver, Troop Commander, Troop L, Florida Highway Patrol, also called by Intervenors, testified to the same effect.[227]

74. In addition, in response to Board questions, the Staff testified that projected population increases would not prevent effective evacuation of the LPZ among current road conditions[228] and that such Staff conclusions would not be changed if one assumes and doubles Intervenor's Witness Schmidt's population figures.[229] There is no evidence in the record to persuade the Board to the contrary. Accordingly in view of the findings herein the Board concludes that contentions 3.2 and 2.2(d) are without merit.

B. Site Suitability

75. Pursuant to the Commission's rules relating to "Preconstruction permit activities" published on April 24, 1974,[230] the parties presented testimony on site suitability considerations identified in 10 CFR Part 100 of the Commission's regulations relating to health and safety issues. The criteria for site suitability are population density; land use characteristics; acceptability as regards possible

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[222] Tr. 1438.
[223] Tr. 1538.
[224] Tr. 1541-1556.
[225] Tr. 1575-1583.
[226] Tr. 1592-1599.
[227] Tr. 1607-1609.
[228] Tr. 1512-1513.
[229] Tr. 1514.
[230] 39 *Fed. Reg.* 14508.

conflict with existing military, industrial, or transport facilities; and physical characteristics.

76. The proposed facility is located on the landward side of highway A1A which passes directly through the site, approximately 1000 ft. east of the reactor containment building. The site is a 1132-acre tract located on Hutchinson Island in St. Lucie County about 8 miles south of Ft. Pierce, Florida and 8 miles north of Stuart, Florida. St. Lucie Plant Unit No. 1 is now being constructed on the site under Construction Permit No. CPPR-74 issued by the AEC on July 1, 1970. The site evaluation was made for construction of a PWR reactor having a thermal power rating of 2560 megawatts thermal (851 megawatts, electrical).[231] Of the 1132 acres, approximately 300 acres will be used for both plant No. 1 and proposed plant No. 2.[232] The site is generally flat, covered by vegetation characteristic of Florida Coastal mangrove swamps. At the ocean side, the land rises slightly in a dune which is generally continuous and ranges in elevation from 8-14 ft. mlw.[233] A description of the site is adequately given in the FES.[234]

77. Applicant has raised the highway A1A grade level to about elevation +18.3 ft. mlw. in front of the plant and has constructed bridges across the plant intake and discharge canals for the highway.[235] The foundation soils for safety related structures consist of compacted fill raised to a grade level of +18.0 ft. mlw.[236] Foundations for all seismic Category I structures and the turbine building within the plant island will be Class I fill. All other nonseismic structures will be supported by Class II fill.[237]

78. Population density and land use characteristics were considered at length in paragraphs 60-63 in connection with the resolution of the matters in controversy, but are also valid for general site suitability considerations. In addition, the Board notes that the Staff analyzed the Applicant's data presented in the PSAR and used data from published reports of population projections by the U. S. Department of Commerce, the 1970 census, Oak Ridge National Laboratory, a site visit, the U. S. Geological Survey, a visit to local officials, the AEC publication "Population Distribution Around Nuclear Plant Sites" of April 17, 1973, and telephone conversations with local officials, to prepare its presentation in Section 2.2 of the FES.[238] As stated above, the demographic information presented in the Applicant's ER and PSAR and the Staff's FES was

[231] SER following Tr. 3344 at p. 1-1.
[232] FES p. 3-7.
[233] SER p. 2-21.
[234] FES, Section 2.
[235] SER p. 2-21.
[236] Id.
[237] Applicant's Exhibit 2A, p. 2.5-39.
[238] Testimony of Dr. Emile A. Bernard following Tr. 904.

found to be inaccurate and was further amended and updated during the hearing by the testimony of the witnesses for the Applicant[239] and the Staff.[240]

79. In July 1974, prior to the evidentiary hearing, the Intervenor counsel called the Staff's attention to discrepancies in population data given in the FES. Staff then made a reevaluation of the population data.[241] The Staff became aware of inaccuracies in Figures 2.5 and 2.6 in the FES during the course of the hearing.[242] Apparently these inaccurate figures were not relied on by the Staff in its calculations; however, the Staff submitted additional testimony which corrected the FES.[243] Figures 2.5 and 2.6 are used to graphically display the population data from the FES in sectors corresponding to compass points in annular rings surrounding the plant site and have not been corrected to reflect the most recent data developed by the Staff.[244] Applicant has likewise presented additional information, in the form of a proposed amendment to the ER which corrected Figure 2.2-1 thereof, with the most recent data developed by Applicant.[245]

80. During examination by the Intervenor's counsel, and after further Board questioning, it became clear to the Board that the initial incorrect population data presented in the FES was not the result of any intentional effort to mislead or of negligent conduct on the part of the Staff. It apparently resulted from an apparent oversight by Staff in compiling Applicant's data. These data were corrected by the testimony of Dr. Bernard. The Board was persuaded that the errors in Figs. 2.5 and 2.6 of the FES were inadvertent errors that arose during the final editing stage of the FES. The Staff readily admitted the error, took immediate steps to correct it during the proceedings, and responded to cross-examination and Board questioning in a forthright, candid manner. Accordingly the Board hereby modifies the FES by inserting therein corrected Figures 2.5 and 2.6[246] in substitution for those initially presented. In view thereof and further in view of the findings in paragraphs 60-63, 78, and 79,

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[239] *Testimony of Philip W. Moore relating to Contention 2.2(a) follows Tr. 764*, hereafter "Moore 2.2(a)". Testimony of Philip W. Moore relating to Board Question concerning Contention 2.2 follows Tr. 2967, hereafter "Moore 2.2."

[240] Supplemental Testimony of AEC Regulatory Staff on changes to FES related to population by Francis A. St. Mary follows Tr. 2353; Supplemental testimony of AEC Regulatory Staff on Board questions related to demography by Dr. Emile A. Bernard, pp. 1-37.

[241] Tr. 1466.

[242] Tr. 1457.

[243] Tr. 1445, 2744; Supplemental testimony of AEC Regulatory Staff on changes to FES related to population by Francis St. Mary, follows Tr. 2353.

[244] Testimony of Dr. Bernard following Tr. 2722, p. 2.

[245] Testimony of P. W. Moore following Tr. 2967.

[246] As contained in testimony of Witness St. Mary, see note 243, *supra*.

above, the Board finds the site suitable as to the population density and land use requirements of 10 CFR Part 100.

81. As to site suitability criteria relating to nearby transportation, industrial, and military activities, the Board finds that the St. Lucie County airport, located 12 miles from the plant site;[247] the Stuart Airport, approximately 11 miles from the site; and two smaller private airports, near Ft. Pierce and approximately 10 miles from the site, do not service commercial airlines.[248] The Florida East Coast Railway and State Route 707 run along the west bank of the Indian River approximately 2 miles from the reactor building. The Indian River is used as part of the intracoastal waterway. There are no military bases or firing ranges, missile sites, manufacturing plants, chemical plants, or oil and gas lines or tank farms within 5 miles of the site.[249] After review, the Staff concluded that there are no nearby industrial, transportation, or military facilities or activities which preclude acceptability of the site. Based on the record, the Board agrees and finds the site suitable as to the transportation, industrial, and military activity criteria of 10 CFR 100.

82. The physical characteristics of the site were considered in terms of meteorology, geology and seismology, emergency plans, and hydrology. With respect to meteorology, the Board notes that all meteorological contentions were disposed of by summary disposition, except contention 2.1(b) treated in paragraphs 52-59 above. In addition to considering the specific matter in controversy, the Board must also determine whether there are any meteorological characteristics in general which would preclude site suitability.

83. The Applicant initiated an onsite meteorological measurements program in December 1970 and gathered data from this program for the time period March 1971 – February 1972. The Staff used these data to independently calculate relative concentration factors using the diffusion model described in Regulatory Guide 1.4.[250] These relative concentration factors were then used, along with appropriate release magnitudes, to calculate offsite accident doses for comparison with the guideline values of 10 CFR 100.11. The calculations demonstrated that additional Engineered Safety Features (ESF) would be required to reduce calculated offsite doses to values below the guideline values of 10 CFR Part 100 at a distance of one mile.[251] The Applicant is committed to providing sufficient additional ESF's to reduce calculated accident doses at a distance of one mile to less than the guideline value specified by §100.11 for a Low Population Zone (LPZ) distance.[252] Independent calculations by the Staff

[247] SER p. 2-13.
[248] Id.
[249] Id.
[250] SER pp. 2-14 to 2 20.
[251] Testimony of Calvin W. Moon following Tr. 3340, pp. 3-5.
[252] Testimony of Frederick G. Flugger following Tr. 1310.

showed that reduction of containment leak rate from 0.5 to 0.1 percent of containment volume per day while maintaining the same fraction of unfiltered release would enable the Applicant to achieve the required dose reduction.

84. Following such calculation, the Staff concluded (a) that it is feasible for the Applicant to modify the facility design to achieve required dose reductions using any of several combinations of ESF's and/or containment test leak rate reductions;[253] (b) that the onsite joint frequency meteorological data for the period March 1971–February 1972 provided an acceptable basis to make conservative and representative estimates of atmospheric dispersion characteristics for accidental and routine gaseous releases from the plant;[254] (c) that to permit verification of the relative concentration values, the Applicant must submit an additional one year period of data, with acceptable data recovery, from a continuation of the meteorological measurement program; and (d) that the Staff will require the onsite program to be upgraded to conform to the recommendations of Regulatory Guide 1.23. The Board agrees with these conclusions, finds the proposed procedure appropriate, and concludes that, based on Applicant's monitoring program and the Staff's review of procedures and collected data and the findings of the Board in paragraph 59 above, there are no meteorological conditions which would make the site unacceptable.

85. The site suitability characteristics relating to geology and seismology have been considered in some detail relative to Contention 2.3 above. In addition, the Applicant and Staff provided testimony generally as to the geological and seismological characteristics of the site. The Applicant performed various geologic investigations, including a detailed summary of published and unpublished literature with geologic and structural maps and well log data, contact with geologists familiar with the structures of the St. Lucie County area, a study of various aerial and satellite photographs, and various types of field work including borings and continuous seismic reflection profiling.[255] The Staff reviewed the efforts, activities, and results of the Applicant's testing programs.[256] In addition, the Staff reviewed and evaluated information from the U.S. Geological Survey and the U.S. Coastal and Geodetic Survey[257] and contacted those individuals who had postulated that faulting may exist in the site area.[258] As to seismology, the Applicant undertook an adequate

[253] Several other ESF's, such as chemical additives in the containment spray and additional filtering of containment leakage, have been used in other facility designs to achieve reduction in offsite doses.

[254] SER 2.3.6.

[255] Testimony of George F. Sowers following Tr. 1625.

[256] SER 2.5.1; Testimony of Thomas Cardone at Tr. 1674-1678.

[257] Id.

[258] Tr. 1678.

investigation to review the earthquake history of the site,[259] including blow count data and liquefaction potential.[260] The Staff reviewed Applicant's results,[261] historical earthquakes, and the structure and soil conditions of the site and concluded that the earthquake history is adequately chronicled, that an intensity of VI MM is conservative, acceptable, and feasible for the seismic design of the facility, and that, while it was not possible to establish adequately that liquefaction could not occur in the low blow count zone from the test data alone, nevertheless, from past experience involving a number of critical factors,[262] the Staff concluded that the site shows no potential for liquefaction. In addition, structural engineering analysis performed by Applicant[263] and reviewed by Staff[264] indicates that dynamic interaction between proposed Unit No. 2 with Unit No. 1 being constructed will be no more than 5%.

86. Based on the evidence of record, the Board agrees with the findings of the Staff as to the said physical characteristics relating to geology and seismology and concludes that the earthquake history is adequately documented, that the seismic design of intensity VI MM is adequate and reasonable, that the site does not show potential for liquefaction, and that the interaction between St. Lucie No. 1 and the proposed St. Lucie No. 2 will not be more than 5%. Subject to the improvement of foundation conditions as required by the Board in paragraph 68 above, the Board further concludes that there will be no potential for blockage of the emergency cooling canal in the event of an earthquake, even with extremely low tide. Thus, the Board concludes that the site meets the requirements of 10 CFR 100.10 and Section 1(r) of Appendix A to 10 CFR Part 100.

87. As to emergency plans, the findings of the Board, above, in connection with Contentions 2.2 and 3.2 are dispositive of issues related thereto. In addition, the Board notes the description by the Applicant of his preliminary plans for the possible evacuation of the low population zone as contained in Section 13.3 of the PSAR. The Applicant has also entered into preliminary arrangements with the State of Florida, and the other officials of local, state, and Federal offices for assistance in case of need for evacuation. The Staff has concluded that the Applicant's plans for assigning duties and establishing procedures to assure that the necessary resources are available and that the necessary actions are taken to protect health and minimize danger to personnel, limit damage, and establish control in the event of an emergency situation are

[259] Testimony of George Sowers following Tr. 1625, pp. 7-9.
[260] PSAR 2.5.4.8; Testimony of W. F. Mercurio (2.3(g)) following Tr. 1625, p. 1-3.
[261] Testimony of Bernreuter following Tr. 1669, pp. 2-7.
[262] See Bernreuter, pp. 5-7.
[263] Testimony of W. F. Mercurio (2.3(h)) following Tr. 1265, pp. 1-3.
[264] Testimony of Robert Shewmaker following Tr. 1669, pp. 1-4.

adequate.[265] In view of the entire evidence of record, the Board agrees and concludes that the plans, statements, and commitments of the Applicant meet the intent and requirements of 10 CFR Part 100 and 10 CFR Part 50 Appendix E on evacuation planning at the construction permit stage.

88. The hydrological characteristics of the site were reviewed and considered in some detail in connection with Contention 2.1(b). In addition, the Board notes that potential plant site flooding may occur from intense rainfall or overocean windstorms which induce surges. Applicant has provided acceptable criteria for site drainage facilities to drain runoff away from safety-related facilities during intense rainfall as severe as a local probable maximum storm and criteria to be implemented during the construction of Unit 2 which will preclude flooding of Unit 1 from locally intense precipitation up to and including the severity of the local Probable Maximum Precipitation.[266] Intake cooling water pumps are located on the plant intake structure on the landward side of the plant and flood protected to 22 ft. above mean low water (mlw.).[267] These pumps will be located outdoors and are designed to operate in 100% relative humidity salt laden atmosphere during torrential rains and hurricanes.[268]

89. The flooding potential from severe hurricanes has been evaluated independently both by the Applicant and by the Staff, using a hypothetical probable maximum hurricane (PMH).[269] The Staff calculated PMH storm parameters and used them in conjunction with a recognized and commonly used hurricane surge model developed by the Coastal Engineering Research Center, Corps of Engineers.[270] The Staff thus calculated a surge level to be 16.7 ft. above mlw.;[271] the Applicant calculated a surge of 16.2 ft. mlw.,[272] and the Intervenor calculated 15 MSL (translating to 16.3 ft. mlw.).[273] For conservatism, the Board adopted the Staff's calculation of 16.7 ft. In view of the Staff calculation of +22 ft. mlw. for wave run-up, Applicant has agreed to protect entrances of safety-related structures with stoplog closures to be erected above the grade level of +18 ft. mlw. to an elevation of +22 ft. mlw.[274] Applicant further agreed to provide for sandbagging and plastic sheeting to minimize inleakage up to 22 ft. mlw., the maximum level of wave run-up, if the

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[265] SER Section 13.3.

[266] Id., p. 2-27.

[267] Testimony of Hulman, p. 11, following Tr. 1686.

[268] SER pp. 9-6, 7.

[269] A PMH is a hypothetical hurricane having the combination of characteristics making it the most severe that can probably occur at the proposed site.

[270] Hulman, pp. 5-7.

[271] Hulman, p. 8.

[272] Yeh, p. 2.

[273] Sugg, p. 1.

[274] PSAR, amendment No. 13, p. Q2.10(R)-2.

Staff would require it,[275] and the Staff subsequently required these measures.[276] Applicant also agreed to comply with a Staff request for the construction of monolithic concrete paving approximately 200 ft. long, 8" thick, from the top of the slope (+18' mlw.) to plus 5' mlw. to help prevent erosion of the plant yard.[277]

90. As one of the hydrological factors affecting the suitability of site, the Board considered the effect of a serious storm on the cooling system of the plant. The ocean intake structures are designed to withstand the largest wave that can be supported in the depth of water in which they are located.[278] The ocean intake lines are buried at least 12 ft. below the ocean bottom in the surf zone and 5 ft. below the bottom elsewhere, and this intake system is designed to supply water from levels as low as about −16' mlw., which is well below the lowest ocean level reasonably possible at the site resulting from a PMH moving offshore along a critical track coincident with astronomical low tide conditions.[279] The Board finds that the safety function of the intake system will not be threatened by the PMH. In addition, the Board finds that the emergency canal is designed to remain functional, even if filled in as a result of seismically induced liquefaction, which filling in exceeds that which can be expected during a PMH.[280] Thus, the Board concludes that the emergency cooling canal will remain functional during PMH conditions.

91. The primary ultimate heat sink system for the proposed plant consists of a widened and deepened area at the end of the intake canal, along with the ocean intake structure. The intake cooling water pumps for this system are located in the plant intake structure, flood protected to a level of 22 ft. mlw. above the level of any PMH flooding. Big Mud Creek is the alternative source of water. Flow from this backup source is normally blocked by a bulkhead structure across a connecting channel from Big Mud Creek.[281] The bulkhead structure is designed to include plugged holes which can be opened by remote actuation to allow water to flow from Big Mud Creek when the water level at the plant intake falls below that in Big Mud Creek.[282] Low water conditions in Indian River were evaluated independently by the Applicant and Staff to the satisfaction of the Board.[283] The Board finds that the water supply from either the ocean intake or the canal from Big Mud Creek is sufficient to permit the safe

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[275] Id.
[276] SER p. 2-25.
[277] PSAR Amendment No. 13, p. Q2.10(d)-4.
[278] Testimony of John Fotheringham following Tr. 1839.
[279] Hulman, p. 15.
[280] Fotheringham, p. 2.
[281] SER pp. 2-28 to 2-29; 9-8, 9-9.
[282] Id.
[283] Hulman, pp. 15, 17; SER p. 2-29.

shutdown of St. Lucie Unit 2 and its maintenance in a safe shutdown condition, and therefore the ultimate heat sink is acceptable from a hydrologic engineering standpoint. Accordingly, and in view of paragraphs 88-90 above, the Board finds that there are no hydrological factors that would preclude this site from being a suitable location for nuclear power reactors of the general size and type proposed for St. Lucie 2 plant under the criteria set forth in 10 CFR Part 100.

92. Considering all the site suitability characteristics discussed in paragraphs 75-91 above, the Board concludes that the site is suitable for a nuclear power reactor of the size and type proposed by the Applicant.

C. Compliance with NEPA, Section 102(C) and (D), and Appendix D of 10 CFR Part 50

93. In accordance with Appendix D to Part 50 of the Commission's Regulations, Applicant submitted its Environmental Report (ER) dated May 14, 1972, and subsequent Amendments 1-5.[284] Following docketing of the Applicant and ER on September 4, 1973, a Notice of Receipt for Construction Permits and Facility Licenses and Applicant's Environmental Report was duly published.[285]

94. Based upon information submitted by Applicant in the ER and upon its own independent review and analysis, the Staff prepared a Draft Environmental Statement (DES) which was issued on February 5, 1974. A Notice of Availability of the DES was issued on February 5, 1974,[286] and copies of the DES, with requests for comment, were sent to appropriate federal, state, and local agencies. The notice provided that interested persons may, on or before April 1, 1974, submit comments on the ER and the DES for consideration by the Commission. The notice further provided that Federal and state agencies were being provided with copies of the ER and DES, and that, when any comments from these agencies were received, they would be made available for public inspection.

95. After receipt and consideration of comments on the DES, the Staff prepared and issued a Final Environmental Statement (FES)[287] which discusses the environmental impact of the construction and operation of the facility. It also presents (a) a detailed description of the site and the facility, with a discussion of the impact of the site preparation, and a consideration of transmission line construction; (b) the environmental effects of plant operation, with a discussion of the environmental monitoring program, and an assessment

[284] Applicant's Exhibits 4A, B.
[285] 38 *Fed. Reg.* 26483, September 21, 1973.
[286] 39 *Fed. Reg.* 4938, February 8, 1974.
[287] Staff's Exhibit S-1.

of the environmental effects of accidents; (c) a detailed evaluation of the proposed action, including consideration of the need for power; (d) comments on the adverse environmental effects which cannot be avoided, including the relationship between local short-term uses of man's environment and maintenance and enhancement of long-term productivity; (e) the irreversible and irretrievable commitments of resources; (f) a review of alternative energy sources, sites, and plant design alternatives; (g) a cost-benefit analysis; and (h) a discussion of the comments received on the DES. The FES concludes, after weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs, and considering available alternatives, that the issuance of a construction permit for St. Lucie Unit No. 2, made subject to certain conditions for the protection of the environment, would comply with the provisions of NEPA and Appendix D to 10 CFR Part 50. Based on the evidence of record, and subject to the conditions set forth herein, the Board agrees.

Impacts of Construction

96. The primary impact on the site occurred with the construction of Unit No. 1. This impact involved about 300 acres and resulted from approximately 2 million yards of fill being placed on a previously damaged mangrove swamp. This fill covered approximately 200 acres. In addition, excavation of the intake and discharge canals between ocean and reactor changed an additional 100 acres to waterways.[288] The area of fill on which Unit No. 2 is to be located will be excavated for foundations, associated dewatering of the excavations will be carried out, and the area involved will be approximately five acres. Water extracted in this process will be directed to the intake or discharge canals. The Applicant assures that such discharges will meet applicable State of Florida regulations for turbidity but that, if turbidity is a problem, this water will be directed to a settling basin prior to discharge.[289]

97. While all construction for the intake lines will be completed during construction of Unit 1, installation of the discharge line for Unit 2 will involve a recutting of the beach and dune and will destroy the native dune stabilizing plants which the Applicant was required to establish following installation of the line for Unit 1. Thus, excavation of the dune provides an unusual opportunity for wave action from a severe storm to cut through the island until dune stabilizing plants have been fully reestablished. While the Applicant plans a temporary dune to provide partial protection to the island during the time the dune is excavated, nevertheless normal protection will only be attained when

[288] FES Section 4.1.
[289] Id.; ER p. 4.1-2.

native plants reach maturity with their network of roots acting as a deterrent to cutting. The Board agrees and adopts the Staff's recommendation set forth at p. "v" of the FES to replant the dune as soon as possible after excavation with dune stabilizing plants indigenous[290] to the area, and hereby makes it a condition to any authorization for construction issued pursuant to this decision.

98. The Applicant has committed itself to permitting unrestricted public access for recreational purposes consistent with health and safety and plant protection conditions. Such use should not be significantly affected beyond that brought about by the conduct and operation of Unit No. 1, except that the ocean beach in the vicinity of the discharge may be limited during the time of discharge line installation.[291] Construction and placement of the ocean discharge line will temporarily impede nearshore boat traffic. However, significant impact on recreational water use is not anticipated. General construction activities in the ocean will create small scale turbidity currents as well as temporarily interrupt the natural littoral processes.[292] Restrictions requiring turbidity not to exceed fifty (50) Jackson units will be imposed by the Florida State Water Quality Standards.[293] The Board agrees as to the Staff's conclusion that no significant impact on water use is envisaged.[294] In addition, since there will be no additional transmission rights-of-way required for Unit No. 2, beyond that required for Unit No. 1 there will be no additional effect on agriculture or water producing savanna lands in the surrounding areas.[295]

99. The possible disruption of turtle nesting at the site is an important factor considered by the parties and the Board. Additional construction activities on the beach and dune will cause another period of disruption to turtle nesting in the area.[296] To assist in minimizing such disruption, the Applicant has committed itself to a daily nest identification and relocation program in the affected area during the turtle nesting season.[297] Moreover, plant lighting could cause misorientation of turtle hatchings with resulting increased mortalities. Therefore, during Unit No. 1 construction, the Applicant was required to plant Australian pine or other suitable plants as necessary behind the dune to provide a light shield for the beach and dune area. If this light screen is disturbed for Unit No. 2 construction, the Applicant has committed to replant pines as soon as possible.[298] This would be in addition to the planting of dune stabilizing

[290] FES Section 4.1.
[291] FES Section 4.2.
[292] Id.
[293] Id.
[294] Id.
[295] FES 4.1.
[296] FES 4.3.1.
[297] ER p. 4.1-4.
[298] ER p. 4.1-1.

plants.[299] Also, in an effort to minimize the amount of predation on turtle nests, the Applicant has committed to a program to control all edible refuse during plant construction and operation to limit the raccoon population, to include procedures to prevent deliberate feeding of raccoons in the area by construction and operating personnel.[300]

100. Approximately three-fourths (about 830 acres) of the site will remain essentially in its preconstruction state. As the remainder of the island becomes developed for human use, this substantial acreage may serve as a sanctuary for species which would otherwise be evicted from the island.[301] Increased commercial development of the island appears inevitable and will probably have a more serious effect on the terrestrial biota than the construction activity. The Board believes the potential of the site as a wildlife sanctuary to be favorable and requires the Applicant to recommend further actions towards this end, as well as to carry out its commitments. Effects on aquatic organisms will occur from construction of a second discharge line with a multiport diffuser planned for Unit No. 2 which will extend into the ocean beyond the discharge for Unit No. 1. Construction of this discharge line will involve dredging a channel 20-ft. deep about 2800 ft. into the ocean. Some 17,600 m^2 (4.3 acres) of bottom area will be dredged and 82,000 m^3 (107,000 yd^3) of material will be removed. Protection by sheet piling and onshore disposal of spoil should reduce the effect of siltation on aquatic ecosystems to an insignificant level.[302] Organisms dredged up will be lost. The Applicant calculates that these will number some 16 million polycheates, bivalves, echinoderms, amphipods, and decapods.[303] This number appears to be a very small portion of the total population of these organisms in the area, and repopulation of benthic communities so disturbed is expected within about a year's time. No species of commercial importance are included in the benthic fauna in the area to be dredged, and the Staff expects no significant long term or population effect on the aquatic ecosystems to result from dredging activities associated with the construction of the discharge line.[304] Based on the evidence of record, the Board agrees.

101. For several years the condenser cooling system will be in use with only Unit No. 1 operating. This means the approach velocity at the intake structures will only be about 0.5 fps, which is below that normally desirable to provide a warning signal to fishes to avoid the area, thus increased entrapment in the intake canal may result. The Staff has suggested that the extent of actual fish

[299] FES 4.3.1.
[300] FES 4.3.1; 4.5.1(7).
[301] FES 4.3.1.
[302] FES 4.3.2.
[303] ER 4.1-6.
[304] FES 4.3.2.

entrapment in the canal be carefully monitored, and that, if it becomes a problem, action be taken to increase the intake velocity to about .1 fps.[305] The Board agrees and adopts this recommendation as set forth at FES 4.5.2(2) as a condition to any authorization for construction issued pursuant to this Initial Decision.

102. Insufficient entrainment and dilution by the ambient water due to low exit velocity may occur if only Unit No. 1 is operating, because only half the normal flow of heated water will be going out both discharge lines. Thus maximum surface temperatures of 7.4°F and 2°F above ambient are predicted under these conditions for the Unit No. 1 and Unit No. 2 discharge points, respectively.[306] The Staff recommends use of the Unit No. 2 multiport discharge line as soon as it becomes available. The Staff further recommends that when only one unit is operating, then the multiport discharge line be utilized.[307] The Board agrees and adopts this recommendation as set forth in FES 4.5.2 and page "v"(7)(c) as a condition to any authorization for construction issued pursuant to this Initial Decision.

103. Dewatering of the construction site will be effected in conformance with State of Florida Water Quality Standards.[308] Also, chemicals used during construction and startup will be neutralized to meet state water quality standards. Accordingly the Board concludes that there will be no significant effect from discharge of waters or chemicals meeting the state standards. In addition, noise and dust, and release of combustion products to the atmosphere, from construction equipment are not expected to have any appreciable impact on the residents of the area who live over 1.5 miles away from the site.[309]

Impact of Operation

104. Most of the operating impacts on land use will have occurred with the installation and operation of Unit 1, and Unit 2 is expected to have little additional impact.[310] The major aesthetic impact also occurred with the installation of Unit 1. The three transmission lines across Indian River are the most readily visible feature of the plant, but these have already been considered and evaluated in connection with Unit No. 1. No additional lines will be necessary for Unit No. 2. The reactor and turbine buildings can be seen by residents of the area, and, with proposed Unit No. 2 being added, this visual impact will be increased. This factor was considered by the Board in its

[305] Id.
[306] FES 3.4.2; 4.3.2.
[307] FES 4.3.2; 4.5.2(3).
[308] ER 4.1-2.
[309] FES 4.4.
[310] FES 5.1.

evaluation. The Board also concludes that the overall effect on the terrestrial biota of adding Unit No. 2 to the site will be insignificant.[311]

105. There is no direct use of groundwaters at the site because no fresh groundwater has been found on Hutchinson Island. Subsurface waters will receive inflows from plant waste waters discharged to the sanitary treatment system and the settling basins. In view of the relatively small labor force to be used for operation, the Board sees little significant contamination of groundwaters from these sources. However, the Applicant has committed itself to connect with the municipal sewage treatment facilities as soon as the sewer line is brought within approximately 5 miles of the plant.

106. The plant will utilize water from Big Mud Creek for the emergency cooling system. The Board agrees that no significant impact on the water use of Big Mud Creek is envisioned, provided that the total volume of water drawn does not exceed 4 million gallons per year,[312] and hereby makes this a condition to any authorization for construction issued pursuant to this Initial Decision.

107. Chlorine gas will be utilized for biological defouling of the condenser cooling system at a rate which will provide a concentration of 5 ppm entering the condenser for 15 min. each day. The biocide will be controlled so the chlorine content of the circulating water leaving the condenser will contain a maximum free residual of 1.5 ppm. This will be diluted by a factor of 8 in the discharge canal when the circulating pumps for both Units No. 1 and No. 2 are operating. An operating license condition established for Unit No. 1 provides that concentrations of total residual chlorine be monitored at the ocean discharge to verify the removal of chlorine in the discharge. The Staff has also suggested that chlorine residuals, such as monochloramine and trichloramine should be measured to ensure a complete description of the total chlorine residual.[313] The Board adopts the recommendations for monitoring of chlorine and chlorine residuals provided for Unit No. 1 and makes them a requirement for Unit No. 2. Other chemical releases will not have a measurable impact on the use of adjacent waters nor on the biota therein.[314] Subject to the conditions above, the Board finds that chemical discharges from Unit No. 2 will not result in a significant adverse impact.

108. The actual thermal plumes in the vicinity of the Unit No. 2 discharge will be highly variable as a result of wave action, reversing longshore currents and the plume interaction from the two discharge lines. Heated water from the discharges can be carried by currents to the intake and thus recirculated to the

[311] FES 5.5.1.
[312] FES 5.2.2.
[313] FES 5.2.3.
[314] Id.

plant.[315] There is also a possibility of thermal buildups because of the orientation of Unit No. 1 discharge and its proximity to the Unit No. 2 discharge system. A buildup from the Unit No. 1 plume could increase the background ocean temperature in the vicinity of the Unit No. 2 discharge and effectively reduce the effectiveness of the diffuser system. Thus some question exists regarding whether or not the combined plume from both units will meet the NPDES surface temperature rise limits of 1.5°F.[316] Because of these uncertainties in the FES and taking note of comments made by the Environmental Protection Agency and the Department of Commerce[317] that recirculation and the increased size of the thermal plume could have indirect effects upon the biota, the Board submitted written questions with respect to thermal discharges.[318] Testimony of Witness Shashidhara emphasized the conservatism of the modeling process he had used in calculation of the near field effects.[319] However, from his testimony it was not clear to the Board whether or not his modeling processes had taken into consideration circumstances under which tidal fluctuation would provide dilution but also would spread the plume over a wide area allowing interaction between the discharge and intake units.[320] The Applicant and Staff relied chiefly upon a mathematical analysis presented in the FES for Unit No. 1[321] which was checked against available physical-hydraulic models. This, however, may not be entirely appropriate for conditions at the discharge site.[322] Although the Applicant has sponsored a comprehensive physical-hydraulic model study at the University of Iowa,[323] results from such a model were not available at the evidentiary hearing.[324]

109. Staff Witness Baca's testimony also stressed the belief that there was conservatism in the Applicant's model of circulation. The basis for this belief was past experience in other situations in which these techniques were used in predicting isotherm distribution.[325] However, Witness Baca acknowledged that there would be values to be derived from conducting postoperational monitoring of the Unit No. 1 plume to determine if the predictions of plume size are correct, to see if the plume meets federal and state standards, and in general to verify the assessment made of thermal conditions. Witness Baca recommended

[315] FES 5.2.3, p. 5-3.
[316] FES 5.2.3.1, p. 5-4.
[317] FES 11.4.1 and 11.4.2.
[318] Appendix B.
[319] Testimony of Nagalapur Shashidhara following Tr. 1768.
[320] Tr. 2944, 2941; FES 11.4.1, p. 11-12.
[321] FES 11.4.1.
[322] Id.
[323] Id.
[324] Tr. 2945.
[325] Tr. 2945.

such monitoring to the Board.[326] During cross-examination, Witness Baca recommended infrared mapping of the thermal field from an aircraft scanning device.[327] The Board hereby requires, as a condition to any license issuing from this Decision, that monitoring of the thermal field as recommended by Witness Baca[328] be undertaken after Unit No. 1 is operational. Such monitoring will be undertaken at such times and under such conditions of tide, meteorology, and current that maximum recirculation and maximum buildup of heated effluent would be predicted from interactions between the two discharge plumes and between the two discharge plumes and the intake.

110. The Board also recognizes that the combined plume of Unit No. 1 and Unit No. 2 may have a significant effect on sea turtles coming into the plume; however, facts gathered to date do not show this. Special studies on thermal effects on sea turtles were required as a condition to Unit No. 1. Applicant conducted surveys during nesting seasons of 1971 and 1973.[329] After review, the Staff concluded that the probable impact of plant operation on sea turtles would be acceptable.[330] The Board agrees but hereby requires as a condition to any license issued pursuant to this Initial Decision that turtle nest surveys continue to be conducted to determine changes in nesting patterns which might be indicative of plant related effects and that the results of such surveys be delivered to the Staff and published promptly.

111. Some fish and planktonic organisms will be entrained in the ocean intake system. Fish will be trapped in the intake canal with no mechanism for return to the ocean. Most planktonic organisms will eventually be killed by thermal shock as they pass through the condenser. However, the numbers will be small and the impact on the ecosystem is expected to be minor.[331] Impingement losses are expected to be of minor significance because (1) the velocity caps at the ocean intake are expected to minimize the numbers of fishes entering the intake system, and (2) very few large invertebrates such as crabs have been reported in the offshore waters near the intake and, because the intake is raised above the bottom, few of these are expected to enter the canal system.[332] Fish eggs and larvae will be subject to passage through the plant condenser system. While these have not been identified, the waters off Hutchinson Island are not thought to be important spawning or nursery areas for species of commercial importance. The Staff has concluded that entrained eggs

[326] Tr. 2948.
[327] Tr. 2956, (2955, 2956).
[328] Id.
[329] Dr. Nancy W. Walls, p. 1.
[330] FES 5.5.2.6.
[331] FES 5.5.2.3.
[332] FES 5.5.2.2.

and larvae will be from a general population rather than a local one and will be only a small fraction of the numbers passing the area. Accordingly the Staff sees no measurable effect on the local oceanic ecosystem from their passage through the plant.[333] The Board agrees and so finds. In its evaluation the Board also recognized that during discharge of warm water from the plant, planktonic organisms in the ocean will be mixed in varying proportions into the discharge plume and its thermal and chemical content. As the plume mixes with ambient ocean water, both the incremental temperature and the concentrations of chemicals will rapidly increase. While chlorine residuals will likely not be measurable, the combined effects of heat and chemical forms may have some detrimental effect on phyto-plankters entrained into the plume; however, as the exposure time will be short and the concentrations will be decreasing, mortalities to plankters should not result in a measurable change in the population of organisms in the local ecosystem.[334] The Board concludes that, based on the evidence of record, the overall additional impact of Unit No. 2 with respect to thermal and chemical discharges will be minor and relatively insignificant.

112. The Board heard considerable testimony on possible radiological impact as set forth in paragraphs 13 through 31, above. While the Applicant and Staff calculations agreed that the facility releases are "as low as practicable", Dr. Morgan questioned the calculations because of what he thought were wide disparities in the I-131 releases.[335] However, the Board notes that it was only portions of the I-131 source term which were in disagreement (only a minor part of the I-131 releases) and that such differences were adequately explained by the assumptions used in the calculations.[336] Since the total source terms for I-131 as calculated by the Applicant and Staff were reasonably close,[337] and since it is the total source term from which doses were calculated,[338] the Board finds the differences cited would not amount to error significantly affecting "as low as practicable" criteria. Dr. Morgan also noted that carbon-14 was improperly omitted from source term Table 3.3 for liquid releases. However, in considering the matter, the Board concludes that while this may have been the case, nevertheless it is a harmless omission since Dr. Morgan also agreed that the C-14 dose would not exceed the Staff's "as low as practicable" guidelines.[339] Dr. Morgan questioned the accuracy of FES Table 3.3 because it seemed to exclude radionuclides on the basis of concentration rather than biological

[333] FES 5.5.2.3.
[334] FES 5.5.2.5.
[335] Testimony of Dr. W. Morgan; Tr. 2885; see paragraph 18, *supra*.
[336] FES 3-29.
[337] Tr. 3063.
[338] Tr. 3063-64.
[339] Tr. 3116.

risk[340] and because certain actinide isotopes did not appear in this table.[341] As to the first point, Staff testified that the selection of the concentration level used was on the basis of a generic evaluation which took into account the biological risks associated with individual radionuclides and such that the most critical isotopes, if present at that concentration, would produce negligible doses to individuals and populations.[342] As to the actinide isotopes, the Staff testified that they were considered but that their releases were far below the 5×10^{-6} curies per year cutoff.[343] Dr. Morgan agreed that the dose from these isotopes would not exceed 1 mrem/year.[344] Accordingly, the Board concludes that Staff's review of the release and dose calculations is adequate and that the St. Lucie 2 facility will meet the "as low as practicable" criteria and that any cost factor resulting from genetic and somatic effects on the population or any identified segment of it is slight and would not appreciably affect the cost-benefit balance in favor of construction. The Board was impressed by the thoughtful and expert manner in which Dr. Morgan assisted in developing the record. In essence, Dr. Morgan's testimony was that while the cost-benefit balance favored the construction of St. Lucie 2, there were certain actions that could be taken to minimize the costs and optimize the benefits. However, the suggestions of Dr. Morgan contemplate revision of the Commission's Regulations, and as such are outside of the jurisdiction of this Board. Nevertheless, it appears to the Board, on the basis of the record to date, that Dr. Morgan's opinion on the need for updating the calculations and methodology used by the Staff with respect to the "as low as practicable" guidelines and his opinion on the use of the "dose commitment" concept are of such importance as to require further development of the record. Such development will be undertaken during the course of the health and safety hearings so that the Board may determine if need exists for the referral of these matters to the Commission.

113. The Applicants have submitted a proposed preoperational and operational environmental monitoring program which has been reviewed by the Staff and approved subject to a number of conditions and recommendations.[345] The Board adopts these recommendations herein as a condition of any authorization for construction issued pursuant to this Initial Decision.

114. The Board reviewed the need for power and the forecasting methodology used by Applicant in connection with Contention 1.3 above. Based

[340] Tr. 2887, 3150-51.
[341] Tr. 3179.
[342] Tr. 3210-3211, 3228-3235.
[343] Tr. 3216-3221.
[344] Tr. 3186.
[345] FES Section 6.1.

on the record addressed, the Board is convinced that the growth rate predicted for Florida and the Applicant's service area is reasonable, that Florida will continue to grow at a faster rate than the nation as a whole, that the demand for electric power will likewise increase, that sufficient power is not available from outside the Applicant's system, and that the need for the St. Lucie Unit No. 2 has been adequately demonstrated.

Alternatives to St. Lucie 2

115. The Staff considered the construction of an equivalent fossil fuel power plant at the Hutchinson Island site.[346] Oil has been the major fuel used for electric power generation in Florida; coal has not been a major fuel source because of long distances to sources of supply and high shipping costs. The volume of solid and gaseous waste products produced by fossil fuel units, especially coal, can be a significant environmental problem. In addition, environmental impacts result from the delivery and storage of fossil fuels. Oil or coal plants require several barge shipments per week, and with oil there is the attendant risk of spills.[347] Oil is also objectionable because of uncertainty of supply and increasing cost.[348] The Board also agrees with the Staff that conversion of the present plant to a fossil facility is feasible but involves large cost penalties with no significant net improvement in environmental impact. A fossil plant would produce less waste heat (although the environmental effects of heat from the proposed nuclear facility are considered insignificant) but substantial solid waste products. Based on the evidence of record, the Board concludes that nuclear fuel is the best alternative.

116. The Staff considered the installation of nuclear facilities at another site.[349] Other coastal sites showed no significant advantages; inland sites showed higher ecological and construction costs.[350] As noted in greater detail above, a decision not to construct the plant will result in inadequate reserves for the Applicant's system after 1979, with increasing risk of load curtailments. Sufficient power is not available from deferred retirement of existing units or from outside the Applicant's system.[351] Accordingly the Board finds that the selection of the St. Lucie site results in a lower economic and ecological cost and earlier provision of the needed power. Since other sites do not appear to have a potential for a significantly lower environmental impact, the St. Lucie site, with

[346] FES 9.1.3.
[347] FES 9.1.3.
[348] Tr. 691-693.
[349] FES 9.1.2 and Table 9.1.
[350] Id.
[351] FES 9.1.1.

the major environmental costs already absorbed by reason of St. Lucie 1, would appear to be the best site available for St. Lucie 2.

117. The Board has discussed alternatives relating to ultimate heat sink methods in connection with Contention 1.6 above. In addition, the Board notes that the Staff examined alternatives to the proposed cooling system, including ponds or canals, dry cooling towers, and natural and mechanical draft saltwater cooling towers and did not find them acceptable alternatives.[352] Sufficient surface area does not exist for ponds. Dry cooling towers have not been developed in a size capable of meeting the cooling needs of the proposed plant,[353] and natural and mechanical draft saltwater cooling towers would result in significant environmental impact from noise, salt carryover, drift, and size.[354] The Board has considered the alternatives presented and agrees therewith as augmented and modified by the Board as set forth in paragraph 51 above to incorporate in the FES the testimony offered in connection with Contention 1.6. In view of the record, including the said modification of the FES, the Board concludes that the present St. Lucie design is the best environmental choice of alternatives.

D. Compliance with FWPCA

118. By letter dated May 28, 1974, the State of Florida Department of Pollution Control (DPC) certified to Applicant that, in accordance with Section 401 of the Federal Water Pollution Control Act Amendments of 1972 (FWPCA or Act), as of the issue date, there were no effluent limitations under Sections 301(b) or 302 nor standards under Sections 306 and 307 of the Act which were applicable to St. Lucie Unit No. 2.[355] On October 8, 1974, the Environmental Protection Agency (EPA) published as regulations these limitations and standards.[356] By letter of November 25, 1974, the DPC stated that, notwithstanding issuance of these EPA regulations, DPC had no intention of issuing further certification or modifying its May 28, 1974, certification pursuant to Section 401 of FWPCA.[357] In addition, the Board inquired as to Applicant's compliance with Florida state law.[358] On October 3, 1974, the Florida Pollution Control Board (PCB) issued a variance for St. Lucie 2 from certain conditions relating to temperature and mixing zone which the Applicant is committed to discharge. The variance also notes Applicant's duty to comply

[352] FES 9.2.
[353] FES 9.2.3.
[354] Id., 9.2.4.
[355] Applicant's Exhibit 6.
[356] 39 *Fed. Reg.* 36176, Tr. 3294.
[357] Applicant's Exhibit 10.
[358] 38 *Fed. Reg.* 2079, Jan. 29, 1973.

with all applicable statutes, rules, and regulations of the DPC and PCB other than those from which a variance has been obtained. Accordingly, and with reference to the Commission's Interim Policy Statement (IPS),[359] the Board finds that the May 28, 1974, certification satisfies the requirements of Section 401 of the FWPCA.

E. Cost-Benefit Analysis

119. Both the Applicant and Staff prepared cost-benefit analysis for the St. Lucie Unit No. 2 facility. The costs included:

(a) Small discharges of particulates and radionuclides released to the air and water from facility, but in view of the findings above these discharges will have no serious impact.

(b) Losses of aquatic life due to capture of fish on intake structure screens, plus passage of small fish, organisms, and fish eggs through the circulating water system. As indicated above, this loss has been calculated and evaluated to be minor.

(c) Discharge of relatively negligible amounts of sodium sulfate and chloride to the ocean.

(d) Aesthetic impact as indicated above. In view of the construction of Unit 1, the additional aesthetic impact of Unit 2 is slight.

(e) Discharge of heat into the Atlantic Ocean imposes minimal adverse environmental impact as more fully discussed above.

(f) As noted above, the incremental use of land occasioned by the construction of Unit 2 at the same site as St. Lucie Unit 1 is essentially zero. In addition, with both units in operation, only approximately ¼ of the site acreage will be used for power plant purposes and the rest of the site will be left in its natural state.

(g) The economic costs approximate $500 million.

120. The Board has considered the Staff's cost-benefit analysis[360] and further reviewed it in light of the evidence of record. The Board concludes that the benefits far outweigh the identifiable environmental costs. In arriving at this conclusion, the Board independently considered the effects of the uranium fuel cycle activities as quantified and set forth in Table S-3 of Appendix D[361] and concluded that these effects would not materially change the results of the cost-benefit analysis.

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[359] Tr. 3295-6.

[360] FES p. 10.4.2.

[361] Appendix D to 10 CFR Part 50 (10 CFR 50.20(e)).

F. LWA-2 Activities

121. The proposed facility will be similar to its sister Unit No. 1 previously authorized for the site and under construction. As noted above, the Board has considered the criteria concerning site suitability as set forth in 10 CFR Part 100. In addition, since some of the work activity proposed by the Applicant[362] is subject to the Quality Assurance provisions of 10 CFR Part 50, Appendix B, the Board must determine that there are no unresolved safety issues, relating to the work activities requested, before these activities may be authorized by the Director of Regulation.

122. The Staff has reviewed all of the activities requested by the Applicant and concluded that the only activities involved are those relating to the construction of reinforced concrete base, mat, and walls below grade both for the reactor building and for the intake structure. The former supports the primary containment vessel and the shielding building; the latter supports, *inter alia*, the intake cooling water pumps.[363] The Board concurs.

123. The Staff has reviewed the Quality Assurance programs of the Applicant and its major contractors in considerable detail and in a thorough manner. They concluded that Applicants' QA program is consistent with 10 CFR Part 50, Appendix B, and the commitments made in the application.[364] The Board agrees with the procedures and extent of review conducted by Staff. In addition, the Board examined the Applicant's technical qualifications and QA program.[365] Based thereon, the Board concludes that the Applicant will provide a quality assurance organization that can properly implement the quality assurance programs designed to insure that the requirements of Appendix B to 10 CFR Part 50 are met with respect to any LWA-2 activities authorized.

G. Site Redressibility

124. The Board raised the issue regarding the redress of the site should LWA activities be authorized and undertaken and the construction permit ultimately be denied. The extent to which such LWA activities can be redressed is considered as part of the cost-benefit balance to be performed by the Board and becomes a primary factor if the construction permit were to be ultimately denied. This factor is relatively minor in this case because the site already has been cleared and prepared for the construction of Unit No. 1. Adding a second unit to the site would entail little additional site preparation. The Applicants

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[362] Letter to the Commission dated June 28, 1974, requesting a limited work authorization pursuant to 10 CFR 50.10(e) and to construct structural foundations.

[363] Staff Witness Calvin W. Mann following testimony Tr. 3342.

[364] Id., at p. 13.

[365] Testimony of R. G. Cockrell following Tr. 3015.

have committed to redress the site to the condition existing before the commencement of the LWA activities should the construction permit be ultimately denied.[366] The Board concludes that the measures to be undertaken to redress the site, should this be required, are acceptable and do not materially affect the cost-benefit balance. Thus, should the construction permit for St. Lucie Unit No. 2 be finally denied following the health and safety phase of this proceeding and should LWA activities be undertaken in the interim, the Applicant will redress the site in accordance with commitments made during the course of this proceeding as noted in the record of this case.

III. Conclusions of Law and Decisional Conditions

125. Based on the entire evidence of record and the findings above, and subject to the conditions set forth in paragraphs 126 and 127 below, the Board concludes that:

(a) the environmental review conducted by the Regulatory Staff pursuant to the National Environmental Policy Act of 1969 (NEPA), as further modified and augmented herein, is adequate;

(b) the requirements of Section 102 (2)(C) and (D) of said NEPA, and Appendix D to 10 CFR Part 50 of the Commission's regulations have been complied with in this proceeding;

(c) the requirements of Section 401 of the Federal Water Pollution Control Act amendments of 1972 have been met;

(d) there is reasonable assurance that the St. Lucie site is a suitable location for nuclear power reactors of the general size and type proposed from a radiological health and safety standpoint;

(e) following independent review by the Board of the proposed construction work to be performed pursuant to 10 CFR 50.10(e)(3), there are no unresolved safety issues precluding the issuance of such limited work authorization;

(f) the balance among conflicting environmental and site suitability factors herein, including a weighing of the benefits and costs at this initial phase of the proceedings, favors the issuance of the construction permits for the proposed St. Lucie Nuclear Power Plant Unit No. 2, subject to the conditions set forth in paragraph 126 below.

126. Based upon the findings above, the Board concludes that the following conditions for the protection of the environment shall be incorporated in any

[366] Applicant's Witness R. A. Delorenzo following Tr. 2288; Tr. 2303-4.

construction authorization or permit issued for the proposed St. Lucie Nuclear Power Plant Unit No. 2:

(a) the six recommended conditions set forth at p. v-7 of the Final Environmental Statement for St. Lucie No. 2 are approved and adopted as conditions herein;

(b) the Applicant shall monitor the actual location of milk cows during plant operation, at time intervals to be specified by the Staff, for the purpose of continuing appraisal of population doses;

(c) the Applicant shall utilize a figure of 75 man-rem/yr as a guideline dose for in-plant occupational exposure;

(d) the recommendations of the Staff as set forth in paragraph 59 above shall be made part of the technical specifications of St. Lucie Unit No. 2;

(e) the Applicant will undertake the additional engineered safety features (ESF) required to reduce offsite doses to values below the guidelines of 10 CFR Part 100 at a distance of one (1) mile as specified in paragraph 83 above;

(f) the Applicant shall improve the in situ soils as recommended by the Staff so that the canal barrier and the slopes between the canal barrier and the plant will not fail;

(g) the Applicant shall monitor actual fish entrapment in the intake canal and otherwise comply with the Staff recommendation as set forth at FES 4.5.2(2);

(h) the Applicant shall comply with the Staff recommendation regarding the operation of discharge lines as set forth in paragraph 102 above;

(i) the Applicant shall not draw more than four (4) million gallons of water per year from Big Mud Creek for routine testing;

(j) the Applicant shall monitor chlorine and chlorine residuals as recommended by the Staff and set forth at FES 5.2.3;

(k) the Applicant shall monitor the thermal field after Unit No. 1 is operational as set forth in paragraph 110 above;

(l) the Applicant shall continue the turtle nest surveys and studies to determine any plant impact thereon. The Applicant shall deliver such studies and survey data to the Staff and shall undertake to promptly publish the data and conclusions therefrom; and

(m) the Applicant shall undertake the preoperational and operational monitoring program as approved with conditions and recommendations by the Staff.

127. The Final Environmental Statement for the St. Lucie Nuclear Power Plant Unit No. 2 is approved as corrected and amended, including the following modifications:

(a) The population data presented in the FES is corrected as indicated in the "Supplementary Testimony of AEC Regulatory Staff on Changes to FES

Related to Population" by Francis St. Mary (following Tr. 2353 as corrected at Tr. 2696).

(b) The FES is hereby supplemented to include the testimony in this proceeding of John Young and John R. Fotheringham related to alternative ultimate heat sink methods.

(c) The FES is hereby supplemented to include the testimony in this proceeding of Jacob Kastner related to Table 3.3 as follows:

The note appearing at the bottom of Table 3.3 at page 3-26 of the FES is augmented and revised to read:

> Note: Isotopes less than 5(−6) Ci/yr are not listed. Such isotopes have been investigated and their biological effects were determined to be negligible.

ORDER

Based upon the Board's Findings and Conclusions in this Partial Initial Decision, which shall be incorporated into and constitute a portion of the Initial Decision to be issued as to the St. Lucie Unit No. 2 facility upon completion of the radiological health and safety portion of this proceeding, it is ordered that:

In accordance with Sections 2.754, 2.760, 2.762 and 2.764(a) of the Commission's Rules of Practice, 10 CFR Part 2, this Partial Initial Decision shall be effective immediately and shall constitute the final action of the Commission thirty (30) days after issuance, subject to any review pursuant to the Rules of Practice. Exceptions to this Partial Initial Decision may be filed by any party within seven (7) days after service of this Partial Initial Decision. A brief in support of the exceptions shall be filed by interested parties within fifteen (15) days thereafter, and within twenty (20) days by the Regulatory Staff. Within fifteen (15) days after service of the brief of appellant (twenty (20) days in the

case of the Regulatory Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

It is so ORDERED.

ATOMIC SAFETY AND
LICENSING BOARD

David L. Hetrick, Member

Frank F. Hooper, Member

John B. Farmakides, Chairman

Dated at Bethesda, Maryland,
this 28th day of February 1975.

(The Appendixes are omitted from this publication, but they are available from the Commission's Public Document Room, Washington, D. C.)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

CLI-75-3

COMMISSIONERS:
William A. Anders, Chairman
Edward A. Mason
Richard T. Kennedy

In the Matter of
CONSUMERS POWER COMPANY
(Big Rock Point Nuclear Plant)

Docket No. 50-155
March 19, 1975

Commission suspends proceeding and invites briefs upon specified issue.

ORDER

Upon consideration of the record in this proceeding, it is hereby ordered that this proceeding be suspended forthwith until further order of the Commission.

This order is without prejudice to the parties to this proceeding addressing the following issue. Any party may furnish the Commission with its views as to whether NEPA's requirements for the Big Rock facility's use of mixed oxide fuel as set forth in License Amendment No. 4 could be met fully through preparation of a discrete environmental impact statement for the facility, in lieu of awaiting completion of the generic environmental statement on mixed oxide fuel.

Any party wishing to comment on this issue may file with this Commission a memorandum not to exceed 25 pages in length (including all appendices and exhibits) within 60 days of this order.

It is so ORDERED.

By the Commission

John C. Hoyle
Acting Secretary of the Commission

Dated at Washington, D. C.
this 19th day of March 1975

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-262

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
Michael C. Farrar, Member

In the Matter of

PHILADELPHIA ELECTRIC COMPANY

(Limerick Generating Station,
Units 1 and 2)

Docket Nos. 50-352
50-353

Mr. Troy B. Conner, Jr., Washington, D. C., (with whom Messrs. Eugene J. Bradley, Gerald F. Hadlock, and Mark J. Wetterhahn were on the brief) for the applicant, Philadelphia Electric Company.

Mr. Lawrence Sager, Pottstown, Pennsylvania, for intervenors, Environmental Coalition on Nuclear Power, Limerick Ecology Action, and Delaware Valley Committee for Protection of the Environment.

Mr. Lawrence J. Chandler (with whom Messrs. William Massar and Richard Black were on the brief) for the NRC staff.

Upon exceptions to Licensing Board's initial decision authorizing the issuance of construction permits for Limerick Units 1 and 2 with conditions, Appeal Board, substituting its environmental review of alternative methods of providing water to operate the proposed plant's cooling system for that undertaken by Licensing Board, approves issuance of construction permits for facility but modifies the initial decision, including revision of a condition imposed therein.

Initial decision affirmed, as modified.

NEPA: SCOPE OF INFORMATION REQUIRED FOR LICENSING

A federal agency, in discharging its NEPA responsibilities, must examine in depth those significant environmental effects associated with the project under review which are "reasonably foreseeable", and in doing so must engage in reasonable forecasting and speculation. See *Shoreham*, ALAB-156 and *Maine Yankee*, ALAB-161. It must also scrutinize alternatives and their reasonably foreseeable environmental impact.

NEPA: CONSIDERATION OF ALTERNATIVES

Where there is continuing uncertainty respecting the water supply alternative which will ultimately be selected, all alternatives which are reasonable possibilities must be included in the NEPA review at the construction permit stage.

NEPA: CONSIDERATION OF ALTERNATIVES

Evaluation of a nuclear facility on the basis of a water supply alternative utilizing a proposed project, the construction of which is in no way dependent upon its possible use by the nuclear facility, need not consider the environmental consequences of the project. But environmental consequences of expansion of a water supply pipeline must be considered, to the extent that such expansion is necessitated by demands of the facility.

NEPA: FEDERAL AGENCY

Where the Federal government is a party to an interstate compact and where the Commission created thereby is expressly made an agent of each of the parties, such Commission should, in the absence of any statutory language to the contrary, be considered a federal agency for NEPA purposes.

NEPA: FEDERAL AGENCY

Where another federal agency is authorized to prepare an environmental impact statement in compliance with NEPA, the NRC staff may use such statement as a basis for its own independent assessment of the environmental impact of a proposed action.

RULES OF PRACTICE: BURDEN OF GOING FORWARD

Where intervenors contest applicant's reliance upon historical water flow data, on the basis that general climatic conditions may change significantly over the life of the reactor, they have the burden of presenting evidence which shows that such possibility is more than theoretical.

RULES OF PRACTICE: COMPLETION OF RECORD

Although Appeal Board has the power to insist upon further development of a seemingly incomplete record on specific issues not put into contest by the parties, there is no compelling necessity to do so in circumstances where it does not appear that the deficiency may have brought about an erroneous ultimate conclusion.

NEPA: RULE OF REASON

A rule of reason governs an agency's assessment of environmental costs and benefits of a proposed project.

RULES OF PRACTICE: AMENDMENT OF FINAL ENVIRONMENTAL STATEMENT

Ultimate NEPA judgments by the Commission are to be made on the basis of the entire record before the adjudicatory tribunal; since the findings and conclusions of the tribunal are deemed to amend the FES where different therefrom, it is permissible in some circumstances to address an issue (not specifically discussed in the FES) at a public hearing, without first recirculating an amended FES.

NEPA: SCOPE OF INFORMATION REQUIRED FOR LICENSING

In the circumstances of this case, the generic evaluation of a reservoir's environmental impact, made without relationship to any particular site, did not offer a solid foundation upon which the costs of a specific reservoir could be reasonably forecast and a reasonable comparison with other alternatives drawn.

NEPA: SEGMENTATION

Where a project is determined to be independently justifiable, it does not amount to improper segmentation to delay to a later date the consideration of possible alterations which would enhance the benefit of the project and which might be warranted in the future. Grant of a construction permit for facility using "river follower" cooling alternative does not preclude applicant from seeking to employ another method of cooling, subject to the conduct of an appropriate environmental review of such alternative method.

RULES OF PRACTICE: FUEL CYCLE RULE

The fuel cycle rule, promulgated by the Commission through rulemaking, assigns values to various costs inherent in the fuel cycle and requires that these values be considered in the environmental evaluation of each facility.

DECISION

March 19, 1975

By an initial decision issued on June 14, 1974,[1] the Licensing Board authorized the issuance of construction permits to the applicant, Philadelphia Electric Company, for the Limerick Generating Station, Units 1 and 2, a nuclear power facility to be located on the east bank of the Schuylkill River in Limerick Township, Montgomery County, Pennsylvania. Exceptions to the initial decision were filed by the applicant; by the Atomic Energy Commission's regulatory staff;[2] and by one group of intervenors below, consisting of the Environmental Coalition on Nuclear Power, Limerick Ecology Action, and the Delaware Valley Committee for Protection of the Environment (hereinafter referred to as the intervenors). All but one of the briefed and argued exceptions relate to the completeness of the environmental reviews which were conducted on three alternative methods for providing water to operate the proposed plant's cooling system. Although the appeals are deemed to be confined to the issues raised by those exceptions,[3] we have also conducted our customary *sua sponte* review of the remainder of the initial decision and the underlying record.

For the reasons set forth below, we conclude that the Licensing Board correctly decided that construction permits should be issued at this time. We find ourselves unable, however, to agree with some of that Board's specific determinations on the questions posed by the appeals. Accordingly, we are modifying the initial decision in certain respects—one of the modifications being the revision of a condition imposed by the Board upon the construction permits. As thus modified, the initial decision is being affirmed.

I. RELEVANT FACTS

The evidence bearing upon the water supply questions before us is not in serious conflict. As will appear below, the controversy among the parties relates instead to the legal consequences which flow from the undisputed facts, in terms of whether (and, if so, on what basis) the issuance of construction permits could be now authorized. The relevant disclosures of record are these:

[1] LBP-74-44, reported at RAI-74-6 1098. The construction permits authorized by the initial decision were issued by the Director of Regulation on June 19, 1974. 39 *F.R.* 23085-86 (June 26, 1974).

[2] By virtue of the Energy Reorganization Act of 1974 and an implementing Executive Order, the licensing and regulatory functions performed by the Atomic Energy Commission were transferred to the Nuclear Regulatory Commission effective January 19, 1975.

[3] See, *e.g.*, *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, RAI-73-10 831, 832-33 (October 26, 1973).

A. General Background

The applicant proposes to construct two boiling water reactors, each with initial power levels of 1055 megawatts electric and design power levels of 1100 MWe. The facility is to have a closed-cycle cooling system, employing two natural draft cooling towers. That system will require for its operation a continuous input of some 74 to 87 cubic feet of water per second (cfs). Of that amount, between 54 and 65 cfs will be consumed in the cooling process; the remainder, approximately 20-22 cfs, will be returned to the source of supply. (Final Environmental Statement, p. 5-1;[4] TAMS Report, Exh. 13, p. 5).

If located at the proposed Limerick site, the facility would be required to draw its cooling water directly from either (1) the adjacent Schuylkill River or (2) the nearby Perkiomen Creek by means of pumping and pipeline facilities which are to be constructed by the applicant. See FES, p. 2-19.[5] Operation of the plant is therefore dependent upon the applicant's ability to obtain sufficient cooling water from the Schuylkill and the Perkiomen. These two tributaries are part of a network of streams in the Delaware River Basin which empty into the Delaware and thereby provide part of the downstream flow of fresh water in that river. Because both are important sources of fresh water for users farther downstream, withdrawals from them must be weighed against the overall needs and resources of the Basin.

Responsibility for water supply and water quality matters concerning the Delaware River and its tributaries is vested in the Delaware River Basin Commission (DRBC), a regional agency created by intergovernmental compact.[6] Under the terms of the compact, DRBC has jurisdiction over both the development of water storage facilities to augment the water supply in the Basin during periods in which the natural flow of fresh water is reduced,[7] and the allocation of water to approved projects within the Basin. (Delaware River Basin

[4] The Final Environmental Statement for the Limerick facility (hereinafter FES) was introduced into evidence as Exhibit 17.

[5] As will be seen later, the Delaware River is a potential indirect source of Limerick cooling water by reason of a proposed diversion project which would link that river and the Perkiomen.

[6] The Delaware River Basin Compact was adopted by the States of Delaware, New York, New Jersey and Pennsylvania, and by the Federal government. Federal ratification was by joint resolution of Congress. See Pub. L. No. 87-328, 75 Stat. 688 (September 27, 1961). The Commission itself is composed of representatives of the Federal government and the signatory states.

[7] The principal water supply problem in the Basin is caused by the need to provide a specified minimum flow of fresh water downstream at all times, despite natural fluctuation in the flow of the Delaware and its tributaries. Water storage facilities ease the supply problem by withdrawing water during periods of high flow and by releasing water during periods of low flow.

Compact §§2.7, 3.1-3.8, 4.1-4.5, 75 Stat. 692-96). DRBC regulates the supply and use of water in the Basin through a comprehensive plan which it has devised.

That plan establishes water supply and water quality standards based upon DRBC's forecasts of the future supply of and demand for Basin water. On the supply side, DRBC looks at the anticipated natural flow of water in the Basin as augmented by existing and proposed storage facilities. The projected demand stems from those consumers who have received a DRBC authorization to draw water or who have been guaranteed a specified minimum amount of water by court decree. See Compact §3.2, 75 Stat. at 692. With regard to potential water users not now falling in either of these categories (and thus not included in the plan), DRBC approval of their employment of Basin water is dependent upon, *inter alia*, the availability of sufficient water to satisfy both their needs and already existing needs.

B. Action of the Delaware River Basin Commission Regarding the Limerick Facility

On March 5, 1970, the applicant sought from DRBC (1) a withdrawal and discharge permit for the proposed Limerick plant, and (2) inclusion in the comprehensive plan. On March 29, 1973, DRBC rendered its decision on the request.[8]

Central to that decision was the DRBC conclusion that water could be drawn from the Schuylkill, Perkiomen and Delaware by users such as the Limerick facility only in circumstances where the flow in those waters exceeded certain limits which the DRBC had specified.[9] In this connection, DRBC at least implicitly found that there would be periods during which the flow from these tributaries, even as augmented by water released from certain now existing storage facilities, would be insufficient to enable the Limerick facility to procure enough cooling water to operate at full capacity.

In making its request of the DRBC, the applicant had pointed to the proposed Tocks Island project[10] as a source of additional water in times of low natural flow. DRBC was not, however, prepared to commit itself to the furnishing of Basin water to Limerick based upon an assumption that the Tocks Island project would come into existence. Rather, all that it was willing to do

[8] That decision, issued in DRBC Docket No. D-69-210 CP, is reprinted in the FES at pp. I-8 through I-14.

[9] The specified minimum flow requirements are designed to limit the intrusion of salt water up the Delaware and thereby to guarantee that chloride concentration does not exceed the 250 mg/l standard prescribed in the comprehensive plan for that portion of the Delaware above the mouth of the Schuylkill. FES, p. 5-3. Additionally, the withdrawal limitations established by the DRBC decision are designed to maintain water quality in the Schuylkill and Perkiomen given the anticipated discharges. *Id.* at pp. I-12 and I-13.

[10] This project is described in greater detail *infra*, pp. 169-170.

was to indicate tentatively[11] that water would be made available to Limerick on one of three possible bases:

(1) Assuming no additional storage facilities, the applicant might be authorized to draw water from the three waterways so long as the effect thereof would not be to reduce the downstream flow below acceptable limits. As a practical matter, however, this so-called "river follower" operating method could not be invoked to obtain water from the Delaware (as distinguished from the Schuylkill or the Perkiomen) prior to the completion of the proposed Point Pleasant Diversion project, a series of pipelines and pumping stations serving to link the Delaware with the East Branch of the Perkiomen. See FES, p. 2-19.[12] This project was included in DRBC's comprehensive plan by that agency's decision in Docket No. D-65-76 CP(3) (FES, pp. I-1 through I-7). That decision imposed certain conditions designed to minimize the environmental impact of the Diversion, and deferred DRBC's final approval of the project pending submission and review of further design and operating plans conforming to those conditions (*id.* at pp. I-4 to I-5; Tr. 3598-99). Once final approval has been given, about one and one-half years will be required for construction (Tr. 3599-3600).

(2) Assuming that, by 1977, DRBC determines that additional storage facilities will be in existence by 1980[13] and that they will be adequate to supply the needs of the Limerick facility and other approved users, the applicant might be authorized to take advantage of those storage facilities in times of low natural flow. As is clear from its decision, DRBC had in mind solely the possible construction of the proposed Tocks Island project. This project, sponsored by the Corps of Engineers, would consist of a large dam and reservoir located on the Delaware in the general vicinity of Milford, Pennsylvania and Montague, New Jersey. The reservoir's storage capacity would supply water for a number of municipal and industrial uses throughout the Basin including, if approved by DRBC, the Limerick facility (Tr. 3574, 3588-89). Prior to 1970, DRBC

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[11] The DRBC decision reflects the agency's belief that no final approval could be forthcoming in any event prior to the then-uncompleted environmental assessment of the Limerick facility by the AEC. As DRBC saw it, the allocation of water from the Basin constitutes a "major Federal action significantly affecting the quality of the human environment" within the meaning of the National Environmental Policy Act, 42 U.S.C. 4321, 4332(C)—with the consequence that any allocation to the Limerick facility had to be preceded by an environmental impact statement. The AEC (now NRC) was designated as the "lead agency" for the NEPA aspects of the Limerick project, with the consequence that it alone—rather than it and the DRBC—had primary responsibility for the preparation of an environmental impact statement. See 40 CFR 1500.7(b) and Exhs. 19 and 20.

[12] The Diversion project is sponsored by Bucks County, Pennsylvania and would serve as well the needs of Montgomery County, Pennsylvania and the Limerick facility (Tr. 3598, 3607-08).

[13] The then-anticipated time of commencement of Limerick operation.

estimated that the Tocks Island project would be in operation by 1978 (Tr. 3576-77). But subsequent events, including unresolved disagreements concerning the project between its sponsors and officials of New Jersey, as well as congressional action requiring additional studies as a precondition to the appropriation of funds, have clouded the project's future. Moreover, even if agreement is reached and appropriations are authorized, a minimum of eight years would be required for construction (Tr. 3577, 3587). Despite the uncertainties surrounding the project, DRBC remains committed to it as the best solution to the Basin's water problems (Tr. 4834).[14]

(3) Assuming that the Tocks Island project does not materialize, the applicant might be required to construct a storage reservoir to compensate for the water used during periods of low flow. If DRBC should require a storage reservoir, that facility could be located along either the Schuylkill or (at a point above Trenton) the Delaware[15] (Tr. 3643-44; FES, pp. 5-6, H-26). In this regard, DRBC estimates that it would be required to evaluate more than 20 potential reservoir sites, a process which could consume as much as two years (Tr. 4750, 4768-69). Once DRBC directed the construction of a reservoir at a particular site, two years would be required to complete it (FES, p. H-26; Tr. 3658-59).

C. Environmental Assessments of the Water Supply Alternatives Identified by the Delaware River Basin Commission

In light of the nature of the 1973 DRBC decision, the environmental phase of the hearings before the Licensing Board understandably focused upon the environmental assessments which had been made of the "river follower" and supplemental reservoir alternatives—as well as of the proposed Point Pleasant Diversion. Insofar as the third alternative—the Tocks Island project—was concerned, the Corps of Engineers had prepared an environmental impact statement in fulfillment of its NEPA responsibilities (Tr. 3584-85). That statement was not, however, made a part of the record in this proceeding for the apparent reason that the Tocks Island project is not specifically identified with the Limerick facility.

1. A final environmental impact statement was prepared by DRBC on the Point Pleasant Diversion project and submitted to the Council on Environmental Quality in February, 1973. That statement included an evaluation of the environmental effects of the pipelines and pumping facilities associated with that

[14] Because the Tocks Island project would enhance the flow in the Delaware, this alternative would also use the Point Pleasant Diversion to augment the supply of water in the Perkiomen.

[15] Here again, location of the reservoir on the Delaware would entail use of the proposed Point Pleasant Diversion.

project, and also scrutinized alternative means for providing water to the Limerick plant and Bucks and Montgomery counties. The impact statement concluded that the benefits to be derived from the Diversion project outweighed any adverse effects.[16]

Without independently reviewing their underpinnings, the Limerick FES adopted the cost/benefit findings and conclusions contained in the DRBC impact statement on the Diversion project. The DRBC, of course, had not attempted to apportion the economic and environmental costs of the project between the Limerick facility and other potential beneficiaries. At the hearing below, however, the applicant and the staff introduced evidence which reflected that portion of the overall economic and environmental cost of constructing and operating the Diversion which would be attributable to Limerick participation (Tr. 5122-31; Lyle, following Tr. 5847; FES, p. I-3).

On the basis of this evidence, the staff was of the view (1) that the additional environmental costs of enlarging the size of the pipeline and extending the facilities to the Perkiomen (to enable the Limerick plant to become a beneficiary of the project) were small; and (2) that the total economic cost of the Diversion project would be insignificant when compared to the total cost of the Limerick facility. For these reasons, the staff concluded that addition of the costs which could be attributed to the benefit that Limerick would obtain from the Diversion would have no appreciable effect on the overall cost/benefit balance for the Limerick project (Lyle, following Tr. 5847).

2. The "river follower" alternative was not considered in the Limerick FES but was evaluated during the course of the hearing below. Although there was an identification of some marginal environmental benefits which could be expected from the plant's operation on a "river follower" basis, the principal focus of the evidence was on the reduction in *economic* benefits (and therefore the alteration in the overall balance of costs and benefits) which could be anticipated as a result of the plant's reduced output during periods of low water flow.

The applicant introduced a report prepared by a firm of architects and engineers (Exh. 13, identified as the TAMS report) that used historic flow trends in the Schuylkill, Perkiomen, and Delaware to predict the number of days the plant would be forced to shut down under the limitations set by DRBC. That report analyzed the daily flow measurements for these three waterways taken by the United States Geological Survey over the 44-year period from 1927 through 1971. Adjustments were made to account for changes in the Basin's water supply and consumption situation which had occurred since the taking of the original measurements, and which could be expected to occur through the year 2010 (when the operating license of the Limerick plant is likely to expire). Additionally, the report estimated the effect of DRBC's water temperature restrictions on withdrawals from the Schuylkill, employing for this purpose

[16] Tr. 3656-57 and prepared testimony of staff witness Lyle following Tr. 5847.

water temperature measurements (taken at Pottstown from 1957 to 1973 and at Reading from 1927 to 1973) and water temperature-air temperature comparisons (utilizing air temperature measurements taken at Reading from 1927 to 1973). TAMS Report, pp 1-2, 7-13.

Proceeding on the assumption that the accumulated historic data provided a reliable indicator of future conditions in the Basin, the report went on to use that data to predict how frequently it might be necessary to curtail Limerick operation because of low water flow.[17] The predictions which emerged varied depending upon the particular assumptions made with regard to the level of anticipated water demand (Exhibit 3 appended to the TAMS Report). In all cases, the frequency curve indicated that during some years the plant would be inoperable for substantial periods of time. The curve founded upon the worst demand assumptions predicted that, owing to low water flow, Limerick outages totaling at least 100 days for the year would occur on the average of one year out of every five. Once in every 15 years of plant operation, the analysis predicted, the outages due to water limitations would total 150 days or more (*ibid.*).

Because the staff's cost/benefit analysis in the FES had not considered the "river follower" alternative, the applicant presented a supplemental cost/benefit evaluation for that alternative based upon the water availability estimates presented in the TAMS report. That evaluation (Exh. 15, identified as the NERA study) forecast the average number of days per year in which water would be unavailable. Taking into account the number of days in which regular maintenance or unscheduled outages might coincide with water unavailability, a reduction in the plant's capacity factor of between 7.4 and 9.5 percent was indicated. Applying the maximum figure to an assumed 80 percent capacity factor for the plant operating without water limitations, the NERA study predicted a capacity factor of 70 percent if the plant operated on a "river follower" basis (*id.* at pp. 1-5).

The study then compared the economic costs and benefits of Limerick operation as a "river follower" with those associated with three alternatives. First, Limerick was compared with an oil-fired plant of equivalent generating capacity located at the same site. On the premise that water flow restrictions would also reduce the oil-fired plant's capacity factor to 70 percent, the study found that the nuclear facility would be more economical (*id.* at pp. 5-6). The second comparison was with an equivalent oil-fired plant located at the so-called "Canal site", the best alternate location which would permit operation of the

[17] In arriving at its frequency predictions, the report made the conservative and unrealistic assumption that, if the water flow fell below the level required for full operation of the two Limerick units, the necessary consequence would be a total cessation of the operations of both units (rather than a progressive reduction in their output as the flow decreased).

oil-fired unit without water restrictions. In making the comparison, the study included the cost of replacement power to fill the gap between Limerick's assumed 70 percent capacity factor as a "river follower" and the assumed 80 percent capacity factor which would be achieved by the oil-fired plant at the Canal site. Again, the study found that the cost/benefit advantage rested with Limerick, although that advantage was somewhat smaller than the advantage over an oil-fired plant at the Limerick site (*id.* at pp. 6-7, 9-11). Finally, Limerick as a "river follower" was compared to an oil-fired generating facility located at the Limerick site which would employ cooling systems (*i.e.*, dry towers) not affected by DRBC's water restrictions. The economic cost/benefit advantage of Limerick over such a facility was determined to be substantially greater than the advantages over the two other oil-fired plant alternatives considered (*id.* at pp. 7-9). Thus, the study concluded that, operating as a "river follower", a nuclear plant located at the Limerick site was economically preferable to the non-nuclear alternatives.

After the applicant completed this presentation, the Licensing Board instructed the staff to prepare an independent assessment of the plant's operation as a "river follower", to include an estimate of the plant's load capacity under that method of operation (Tr. 4144-45). This assessment took the form of a review of the findings contained in the TAMS and NERA studies (prepared testimony of staff witnesses Lyle and Hinkle following Tr. 5139). In evaluating the TAMS report, the staff (1) attempted, unsuccessfully, to compare the applicant's predictions with other water availability predictions acquired from different sources;[18] and (2) conducted its own review of the TAMS analysis.

That review, performed by the staff's senior hydrologist, entailed first, an examination of the raw data which were used by the applicant in predicting water supply shortages. Beyond that, it involved scrutiny of the water storage and consumption estimates employed by the applicant in adjusting the historic measurements to fit water conditions in the Basin over the operating life of the plant. In making his evaluation, the staff's hydrologist relied upon his own familiarity with water supply and demand conditions in the Basin and consultations with the Corps of Engineers, as well as upon his brief discussion of the TAMS water supply and demand estimates with a DRBC staff member (Tr. 5297-99, 5303-09, 5311). The conclusion reached was that the TAMS report contained a valid prediction of future water availability for the Limerick plant through the year 2010 (Tr. 5298-99). From it, the staff computed an average number of days per year in which water would not be available to permit

[18] Although the staff obtained independent water availability predictions from DRBC, those predictions were based upon monthly, as opposed to daily, averages of the USGS historical measurements. For this reason, the staff determined that DRBC's predictions could not be used to validate the TAMS findings (Tr. 5298-99).

operation of the Limerick plant given the worst supply and demand conditions anticipated for the years 1980 to 2010 (Tr. 5322-24). That average (49.6 days per year or 13.6 percent of the time) was used as the basis for the staff's revised cost/benefit analysis.

That analysis compared Limerick with an oil-fired plant of equivalent capacity located at the identical site under the following four operating situations: no restrictions on operation due to water unavailability (*i.e.*, both plants operating at 80 percent of capacity); an average outage of 50 days per year due to water limitations (*i.e.*, both plants operating at 66 percent of capacity[19]); the largest number of days' outage predicted for any year (*i.e.*, both plants operating at 56 percent of capacity); and outages of such magnitude as to reach the point at which the NERA study considered an oil-fired plant and a nuclear plant to be equally advantageous (*i.e.*, both plants operating at 50 percent of capacity). Hinkle testimony, *supra*, following Tr. 5139. Taking into account more current cost data (particularly with respect to fuel costs) than the NERA study had utilized, the staff concluded that Limerick was economically preferable at each capacity level. Moreover, the staff found that, the cost of replacement power included, the economic benefits to be derived from the facility outweighed its economic costs even in the "worst case" situation of a capacity factor of 56 percent (*ibid.*). Consequently, the staff ultimately determined that the "river follower" mode was an economically viable water supply alternative.[20]

3. The staff's environmental review of the supplemental reservoir alternative was undertaken pursuant to an agreement reached among representatives of the AEC regulatory staff, DRBC and the Council on Environmental Quality (CEQ).[21] In fulfillment of the terms of the agreement, DRBC provided the staff

[19] In estimating the capacity factor based upon an average number of days per year lost due to water restrictions, the staff did not include the possibility of scheduling maintenance outages to coincide with outages due to water unavailability. But it did include this possibility in estimating the 56 percent capacity factor for its "worst case" situation. Hinkle testimony, *supra*, at pp. 3-4, following Tr. 5139; Tr. 5408-09.

[20] Nevertheless, the staff stressed that, due to the prolonged outages during times of peak power demand which could occur under this method of operation, the "river follower" mode was not the preferred alternative in this case. Indeed, the staff indicated that, if the applicant had originally proposed to operate the plant under the "river follower" mode, the staff would have conditioned its approval of the project upon the applicant's attempting to obtain water supplies sufficient to prevent such prolonged outages. Lyle testimony, *supra*, at pp. 6-7, following Tr. 5139.

[21] That agreement, reached at a meeting on March 16, 1973, provided that AEC's environmental review of the Limerick plant would include a general evaluation of the environmental effects associated with adding a storage reservoir. That information was to be used by AEC in conducting its cost/benefit analysis of the Limerick project, including the supplemental reservoir alternative. The agreement provided that, if DRBC chose by 1977 to require a storage reservoir, that agency would then prepare a detailed environmental assessment of the specific reservoir and reservoir site selected. Exhs. 19 and 20; Tr. 4744.

with information concerning the potential environmental costs which might be associated with a reservoir of the type required to supplement the water supply for the Limerick plant. FES at pp. H-16 through H-41. That information was not substantiated or verified by any field studies or technical evaluations such as would be conducted during the detailed site review process used in selecting a reservoir.[22] Nor was it necessarily representative of the environmental impact attendant to existing reservoirs in the Basin—being instead merely an outline of the range of environmental effects which, in DRBC's judgment, might be expected in connection with a reservoir of the type under consideration (*id.* at pp. H-26, I-27). Based on the material supplied by DRBC, the staff prepared a list of potential beneficial and adverse effects which might be anticipated from a supplemental reservoir, and included those effects in its overall evaluation of the Limerick Project (*id.* at pp. 5-6 to 5-10). Although it acknowledged that the precise environmental impact of a supplemental reservoir could not be assessed until DRBC selected a specific site for the facility, the staff thought its evaluation to constitute an "envelope" within which any reservoir required by DRBC could be expected to fit (*id.* at p. 5-10; Tr. 5675-76).[23] That thesis was founded upon the staff's judgment that, through careful site selection, construction and operation, a reservoir occupying less than two square miles of land could be built in the sparsely populated reaches of the Basin, thereby minimizing the potential adverse effects outlined by DRBC (FES, p. 5-10).[24]

D. Consideration of Alternate Sites for a Nuclear Facility

A number of other locations for the proposed facility were considered as alternatives to locating the plant at the Limerick site. The staff's final evaluation of alternate sites (as discussed in the FES) considered four other locations in the northern portion of the applicant's service area.[25] All were within the Delaware

[22] Indeed, DRBC staff members testified at the evidentiary hearing that no analysis was conducted on any specific reservoir location in preparing its general evaluation of potential environmental effects (Tr. 3643, 3652).

[23] Any storage reservoir which DRBC might require will have a significant environmental impact. Nevertheless, the type and severity of the adverse effects associated with a reservoir vary depending upon the location of the reservoir and its individual site characteristics. FES, p. H-25; Tr. 3631-32.

[24] Although the FES did not include an evaluation of any specific sites for a reservoir, the TAMS report did contain a study of six possible locations for an impoundment basin or reservoir on or near the Schuylkill, the Perkiomen, and the Point Pleasant Diversion. However, that study represented only a preliminary analysis of the feasibility of facilities at those locations, and did not include a detailed evaluation of specific site-related effects. TAMS Report, *supra;* Tr. 3489, 3826.

[25] This evaluation was limited to alternate sites in that portion of the applicant's service area because the applicant's requirements for system balance and customer needs dictated that the plant be located there. In its preliminary reviews, the staff had considered more remote sites as possible alternatives (FES, p. 10-3).

River Basin and thus were subject to the same water availability limitations as the Limerick site (*id.* at pp. 10-2 through 10-5; Tr. 5679). The staff found that the Limerick site was preferable for two reasons. First, existing railroad and highway facilities provide ready access to the site. Second, a delay of up to three years would be involved in relocating the plant at an alternate site. Based upon the need-for-power predictions it had made, the staff concluded that only if built at the Limerick location could the facility be completed in time to meet the projected need for power in 1979 (FES, pp. 10-6 to 10-7). In this connection, the staff's cost/benefit analysis identified three costs associated with relocating the facility at an alternate location—irrecoverable costs due to site preparation at Limerick, new and greater site preparation costs for the alternate locations, and the cost of replacement power—which supported its conclusion that Limerick was the preferred location (*id.*, pp. 12-6 to 12-7).

The staff presented a supplemental analysis of alternate sites during the evidentiary hearing (prepared testimony of Lyle following Tr. 5643). That analysis provided additional information on the four sites within the northern portion of the applicant's service area which were considered in the FES, and also considered other sites within a 100-mile radius of Limerick which the staff had previously judged acceptable for nuclear generating facilities. Of the latter, the staff pointed to the Peach Bottom site as the best location for an additional plant. On the basis of a detailed comparison of the Limerick and Peach Bottom sites, the staff determined that Limerick was the preferred location. Among other things[26], the staff noted that Peach Bottom, which is located in the Susquehanna River Basin, also suffered from water availability problems (*id.* at p. 4; Tr. 5679).

II. POSITIONS OF THE PARTIES

On the basis of its analysis of these uncontested facts, the Licensing Board concluded that: (1) the impact statement on the Point Pleasant Diversion prepared by DRBC had no operative significance under NEPA because DRBC did not have the status of a federal agency;[27] (2) the "river follower" analysis was "not complete on either radiological or environmental bases";[28] and (3) the supplemental reservoir analysis was a "generalized presentation . . . of little value

[26] Relocation at Peach Bottom would not only delay the completion of the facility but, additionally, would necessitate an expansion of existing transmission facilities. Lyle, *supra*, at pp. 3-5, following Tr. 5643.

[27] RAI-74-6 at 1113-14, 1123-26, 1131. None of the parties to the proceeding asserted that, for NEPA purposes, DRBC was not to be regarded as a federal agency. The Licensing Board reached its conclusion without seeking the views of the parties on the question.

[28] *Id.* at 1128.

to the Board" and failed to comply with NEPA.[29] Notwithstanding this determination that the review of none of the various water supply alternatives was adequate, the Licensing Board authorized the issuance of construction permits subject to the following condition:

> The Applicant will take those measures necessary to assure the availability of compensating water storage capacity at the time of initial power operation if such is permitted by the Delaware River Basin Commission pursuant to DRBC Docket No. D-69-210CP. A schedule identifying significant milestone dates to achieve this objective, assuming the Tocks Island project is not available, shall be developed in coordination with the Delaware River Basin Commission and submitted to the Director of Licensing within six months after the issuance of a construction permit for the station:
>
> Provided, however, that if and when the Delaware River Basin Commission has permitted Applicant to construct supplemental storage reservoir and has allocated sufficient water to be utilized in connection therewith for normal plant operations at full power, and after the required comprehensive basin review has been completed as required by Section 3.8 of the Compact of the DRBC, for the supplemental storage reservoir and the Point Pleasant diversion project, then the Atomic Energy Commission shall prepare Draft and Final Environmental Impact Statements and shall provide a hearing of the scope required by the Rules of Practice of the Commission and by the Administrative Procedure Act to consider the significant environmental impact within the scope of NEPA requirements, of the construction and operation of such supplemental storage reservoir, and the Point Pleasant diversion project to the extent that its facilities are used for Limerick Generating Station, the said hearing and determination of the significant environmental impact to occur before Applicant shall commence construction of the said storage reservoir, or the Point Pleasant facilities which will be used for Limerick Generating Station.

RAI-74-6 at 1152-53. Each of the parties before us contests at least a portion of that disposition.

A. Intervenors' Arguments

The intervenors challenge the Board's authorization of construction permits, claiming that the environmental assessment of the proposed project and its alternatives fails to meet the requirements of NEPA. That claim is based upon the following particular arguments:

1.a. The staff failed to conduct the kind of environmental evaluation of the "river follower" alternative required by NEPA. In intervenors' view, the plant operating as a "river follower" would be, in effect, an entirely different project

[29] *Id.* at 1113, 1122-23.

from the one proposed by the applicant and reviewed by the staff in its environmental statements. We are told that, in these circumstances, the staff was obliged to make a full assessment of the benefits and costs associated with "river follower" operation, which would entail the preparation and circulation for comment of a new draft environmental impact statement. Intervenors insist that the staff's review of the applicant's TAMS and NERA studies, submitted for the first time at a late stage of the hearing below, cannot be deemed an adequate substitute for such an assessment.

b. In any event, intervenors argue, the analyses of the plant as a "river follower" (contained in the TAMS and NERA reports and the staff's supplemental testimony) failed to evaluate adequately the costs and benefits of that alternative. In support of that claim, the intervenors first contend that the water availability analysis in the TAMS report has not been shown to be a valid predictive device for estimating future water conditions in the Basin and, in particular, the probability of future water shortages. Rather, that analysis is asserted to be merely a compilation of the frequency with which shortages occurred during the past 44 years. Without an analysis of the probability that similar shortages will occur over the operating life of the plant, so the reasoning goes, it is impossible to predict accurately the benefit which can be expected from the plant as a "river follower". Second, the intervenors urge that the results of the water availability evaluations are not reliable indicators of future water conditions because the temperature and future demand factors used to adjust the historic flow data are incomplete, and because other factors (such as precipitation) which have a bearing on future water conditions are not considered. Finally, the intervenors assert that the evaluation of the Limerick "river follower" alternative cannot be considered a complete environmental assessment because no comparison was made between that alternative and a nuclear plant located at a site not affected by water limitations. In that connection, the intervenors suggest that, in light of the higher capacity factor achievable, the cost/benefit balance for the latter alternative might well be more favorable than the balance for the plant operating as a "river follower" at Limerick.

2. The staff's evaluation of the environmental impacts of the Point Pleasant Diversion project was assertedly insufficient because it adopted the findings and conclusions of DRBC's environmental impact statement on the project without verifying the groundwork performed by DRBC in making those findings and conclusions. Where those findings are at issue in a licensing proceeding, intervenors maintain, they must be independently verified during this Commission's environmental review. Additionally, the intervenors complain of the staff's failure to include, in making its calculation of the overall cost of operating the Limerick facility, charges which would be imposed by DRBC for the water transmitted through the Diversion.

3.a. Authorization of construction permits now, based upon the staff's generic evaluation of the supplemental reservoir alternative, is said to constitute an impermissible fragmentation of the Limerick project in violation of the requirements of NEPA. Specifically, it is intervenors' view that the Limerick project will ultimately include a supplemental storage reservoir. By authorizing construction at this time, before an environmental impact statement has been prepared on a specific reservoir site in the Basin, the intervenors insist, the Licensing Board sanctioned an irreversible and irretrievable commitment of resources even though it lacked knowledge of the specific environmental consequences involved in building a plant with a reservoir. Such a commitment of resources, according to intervenors' reading of the NEPA mandate, can be made only after an environmental review of the entire project in order to ensure the selection of the optimum alternative.

b. Even if it were enough at this time to make a generic evaluation of the environmental effects of a supplemental reservoir, intervenors urge us to reverse the Licensing Board's decision and to remand the proceeding to remedy certain alleged procedural defects in the conduct of the evidentiary hearing. The intervenors point to the Board's repeated refusals to allow them to cross-examine witnesses for the applicant and staff regarding specific potential reservoir sites in the Basin. The intervenors' thesis is that such cross-examination would have enabled them to ascertain whether the staff's generic evaluation had in fact produced an "envelope" within which any reservoir could be expected to fit.

B. Applicant's Arguments

The applicant supports the issuance of construction permits but objects to the condition imposed by the Licensing Board. Its principal arguments are as follows:

1. The staff's treatment of the environmental effects associated with the Point Pleasant Diversion was not defective. DRBC is a federal agency for NEPA purposes and, thus, the staff was justified in relying upon the findings and conclusions in DRBC's detailed environmental statement on the Diversion, a project within its jurisdiction and area of expertise.

2. The evaluations conducted on the "river follower" alternative meet NEPA requirements; constitute a complete assessment of the project operating under that mode; and demonstrate that Limerick is justified on a cost/benefit basis even if required to operate as a "river follower." The TAMS report is claimed to be a reliable device for predicting future water availability because it (1) is based upon detailed records of flow trends in the Basin for a 44-year period; (2) incorporates the best information available for adjusting those records to fit the water supply conditions which will occur over the life of the plant; and (3) uses conservative estimates throughout to compensate for possible unknowns

or defects in the data used. In turn, the NERA study and the staff analysis are said to demonstrate that, operating as a "river follower", Limerick will not only be economically viable but, as well, superior from a cost/benefit standpoint to the alternatives of a nuclear facility located at some other site or an oil-fired plant located at the Limerick site or elsewhere. That "river follower" operation was not considered in the FES is, as the applicant sees it, of no significance here. The requirements of NEPA were satisfied so long as, at some point prior to the decision to authorize construction, a full environmental assessment was made.

If this thesis is accepted, the applicant would have us go on to hold that we need not consider the sufficiency of the environmental review of the supplemental reservoir alternative to the "river follower" operation of Limerick. This is because, the applicant contends, at this juncture it is "speculative" whether that alternative will be eventually chosen and, therefore, the construction of a supplemental reservoir is neither "a part of nor a necessary consequence of [NRC] licensing action.

3. Should we conclude, however, that there was not an adequate environmental appraisal of the operation of Limerick as a "river follower", the applicant would have us examine the sufficiency of the environmental analysis of the supplemental reservoir alternative. Even though having characterized the likelihood of the selection of that alternative as problematic, it nevertheless urges that Limerick construction could be authorized if the analysis were complete and reflected that the environmental costs associated with the use of a supplemental reservoir were acceptable.[30]

a. We are told that the supplemental reservoir alternative should be found to have been given sufficient environmental scrutiny. The applicant's line of reasoning is this: The generic evaluation of the environmental effects which might be expected from a supplemental reservoir was sufficient to permit a reasoned decision on the overall costs and benefits of the Limerick facility. The information underlying the evaluation was reliable because it had been furnished by DRBC, the most knowledgeable authority on Basin conditions and the potential environmental consequences of a reservoir. The evaluation was sufficient because it provided an "envelope" within which any reservoir required by DRBC could be expected to fit. In this connection, no appraisal of a specific reservoir site is now required given (1) DRBC's decision to defer consideration of specific sites and the fact that there are approximately 400 potential sites, each involving different environmental consequences; (2) the requirement that a complete assessment of specific sites be conducted before a reservoir is

[30] In short, the applicant's position is that, so long as either the "river follower" or supplemental reservoir alternative were adequately reviewed, NEPA was satisfied. As we understand it, however, the applicant does not contend that plant construction could have been authorized on the basis of a full environmental analysis of the Tocks Island alternative alone.

authorized by DRBC; and (3) the approval which the followed approach received from the CEQ, which has responsibility for superintending federal agency compliance with the requirements of NEPA.

b. The applicant further argues that the Licensing Board committed no procedural error which precluded the intervenors from presenting their case on the validity of the generic evaluation. It points out that the intervenors could have made an offer of proof that the generic evaluation did not constitute an "envelope" within which all reservoir sites could be expected to fit. Further, the applicant does not view the Board's ruling as having precluded cross-examination on the validity of the staff's analysis of the anticipated environmental effects set forth in the generic evaluation.

4. The applicant attacks the condition imposed by the Licensing Board. With respect to the requirement that it both assure the availability of supplemental water at the time of initial power operation and develop a schedule for doing so,[31] the applicant argues that this Commission lacks jurisdiction to impose such a requirement since any decision as to a supplemental reservoir is within the exclusive jurisdiction of DRBC. Moreover, according to the applicant, the requirement presupposes the need for a storage reservoir at the time of initial power operation, an assumption which is factually unwarranted given the "river follower" evaluation. Finally, the applicant contends that the schedule requirement is a useless exercise in view of DRBC's present commitment to Tocks Island.

With regard to the remainder of the condition, the applicant contends that this Commission should not duplicate the environmental assessments of another federal agency. It stresses that DRBC has already fully reviewed the Point Pleasant Diversion project, and will assess the appropriateness of a supplemental reservoir before requiring one.

C. Staff's Arguments

The staff supports the issuance of construction permits but opposes that portion of the Board's condition which requires this Commission (1) to prepare additional environmental statements on the Point Pleasant Diversion and on a supplemental reservoir should one be required by DRBC; and (2) to conduct hearings on those statements.

In substantial measure, the staff advances the same arguments as the applicant. However, it endorses so much of the Board's condition as it had itself suggested (see fn. 31, *supra*). Under the staff's thesis, this Commission has jurisdiction to condition the issuance of a construction permit in order to guarantee that the optimum cost/benefit relationship is achieved. Because the plant with a supplemental reservoir will yield greater benefits (in terms of

[31] This portion of the condition had been recommended by the staff.

productive capacity) than the alternative of operation as a "river follower", the staff argues that assuring the timely construction of a reservoir (if one is required by DRBC) is a matter within our jurisdiction. Under the same jurisdictional theory, the staff justifies the scheduling portion of the condition on the need for a means of monitoring developments on the supplemental reservoir front.

III. DISCUSSION OF THE ISSUES

As is readily apparent, our ultimate task on the appeals before us is to determine whether, given the facts of record with respect to the environmental assessment which has been made of the various water supply alternatives, the Licensing Board rightly authorized the issuance of construction permits subject to the condition which we have set forth above. In making that determination, we must resolve several subsidiary questions.

First, we must decide whether, in the circumstances, an environmental assessment had to be made at this juncture of all three water supply alternatives recognized by the DRBC (together with the Point Pleasant Diversion project which is an integral part of each of them). In Part A, *infra*, we conclude that NEPA required such an assessment of each alternative as a precondition to the authorization of construction permits for the Limerick facility.

The next question is whether the assessments were made and, if so, what they established. This question is discussed in Part B, *infra*. Our major conclusions are: (1) that, insofar as the Tocks Island alternative is concerned, it was enough to evaluate the environmental impact of enlarging the Point Pleasant Diversion to make that alternative available to the Limerick facility; (2) that the appraisal of the Diversion project reflected that it would have little environmental impact; (3) that the DRBC is a federal agency for NEPA purposes and therefore it was appropriate for it to conduct the appraisal of the Diversion project; (4) that the analysis of the "river follower" alternative established that, operating under that alternative (which would involve no incremental environmental costs), Limerick would be preferable from an economic standpoint to an oil-fired plant located either at this site or at a different site having no water supply problems; (5) that there was no necessity to issue and circulate a new draft environmental impact statement incorporating the "river follower" analysis; (6) that a generic evaluation of the supplemental reservoir alternative was the most that could be accomplished at this time but that the evaluation here provided an insufficient foundation for any ultimate NEPA judgment respecting the acceptability of Limerick should that alternative be employed.

We move on in Part C to consider what follows from these conclusions. We decide that, consistent with the commands of NEPA, construction of Limerick could be authorized on the premise that the "river follower" alternative will be utilized so long as the record demonstrated that the *net* benefit of Limerick

operating under that alternative would be as great as that of either a non-nuclear plant at the same or a different site or a nuclear plant located elsewhere. We find that such a demonstration has been made.

A. Scope of the Commission's NEPA Review of the Water Supply Alternatives

It is now well settled that, in the discharge of its NEPA responsibilities, a federal agency must examine in depth those significant environmental effects associated with the project under review which are "reasonably foreseeable." This means that, although it is unnecessary to consider "mere possibilities unlikely to occur as a result of the proposed activity," the agency must engage in "[r]easonable forecasting and speculation." *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, RAI-73-10 at 831, 836, 838 (October 26, 1973; *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, RAI-73-11 1003, 1011 (November 30, 1973); and judicial decisions there cited. And the required "good faith effort . . . to describe the reasonably foreseeable environmental impact" of a proposed action calls for more than simply an evaluation of the proposal as it has been presented by its sponsors. Scrutiny must be given as well to "alternatives and their reasonably foreseeable environmental impact." *Shoreham,* RAI-73-10 at 838.

We encounter little difficulty in the application of these principles to the facts of the case at bar. Despite the acknowledged continuing lack of certainty respecting the precise means by which, if constructed at the Limerick site, this facility will be allowed to satisfy its need for cooling water, the record before us firmly establishes that there are three potential sources of supply and that none of them can properly be ruled out at this juncture.

To be sure, there are obstacles in the path of the approval of the Corps of Engineers' Tocks Island project. Nonetheless, at least as of the time of the proceedings below, the DRBC was still committed to Tocks Island as the best potential solution of the water supply problems of the Delaware River Basin and it is premature to discount altogether the possibility that those obstacles will be removed.

Insofar as the other two alternatives are concerned, the eventual choice between them (should Tocks Island not materialize) will be made by the DRBC and not until 1977. But that consideration scarcely provides a footing for the applicant's insistence that, in deciding whether to authorize construction of the facility at the Limerick site, our Commission need not have explored at all the environmental impact of the supplemental reservoir alternative. Irrespective of where might lie the final decision-making authority regarding the construction of such a reservoir by the applicant, the fact remains that it is far from "completely speculative" (as the applicant would have it) that that alternative will be chosen. The applicant and the staff both favor it, for the obvious reason that it will allow

a greater utilization of the facility's total generating capacity than will the "river follower" alternative. And there is no reason to suppose that, in arriving at its determination, the DRBC will not take this factor into account and weigh it against those incremental environmental costs (*e.g.*, the consumption of land) which construction of the reservoir will involve. In short, as matters now stand, there is a very real possibility that one of the consequences of the licensing of the construction of this facility at the Limerick site will be the construction of a supplemental reservoir by the applicant (under a directive from the DRBC). This being so, that water supply alternative—as well as each of the other alternatives—had to be evaluated from an environmental standpoint as a precondition to the authorization of the issuance of construction permits.[32]

B. Sufficiency of the Environmental Assessments of the Water Supply Alternatives

We now turn to a consideration of the environmental assessments which were made of the three water supply alternatives. As previously indicated, we are called upon to decide, with respect to each alternative, whether a sufficiently complete review has taken place to enable a final judgment to be made regarding the acceptability of the Limerick facility should that alternative ultimately be adopted.

1. Tocks Island

Although, if it were to come into existence, the Tocks Island project would provide a source of cooling water for the Limerick facility, it is plain upon analysis that any environmental effects associated with that project could not be laid at the Limerick doorstep. As we have seen, Tocks Island would supply the needs of a number of municipal and industrial water users throughout the Basin area, of which Limerick would be but one. And there is not the slightest indication that the decision to build or not to build the project will be influenced to any extent by whether a nuclear generating plant is to be located at the Limerick site.

Accordingly, it is fair to regard the Tocks Island project as being wholly independent of the Limerick facility and, consequently, as not an ingredient of the NEPA cost/benefit balance for the facility. At least tacitly, the intervenors

[32] The applicant's reliance upon *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), LBP-73-11, RAI-73-3 213 (March 19, 1973), affirmed as modified, ALAB-114, RAI-73-4 253 (April 13, 1973), is misplaced. The conclusion of the Licensing Board in that case (RAI-73-3 at 226, fn. 11) that the parties need not present evidence on the environmental impact of resort to an alternative source of cooling water rested on facts materially different from those presented here.

concede as much. They do not complain that Tocks Island itself was inadequately evaluated. Rather, the focus of their attack is upon the assessment made of the Point Pleasant Diversion project, the means by which the water from the Tocks Island reservoir would be transported from the Delaware to the Perkiomen for use at Limerick. Although the Diversion would benefit several water users, it would have to be expanded in order to serve the Limerick facility. It is beyond dispute that the economic and environmental costs associated with that expansion must therefore be taken into account in determining the overall costs and benefits of the Limerick facility.[33]

a. The thrust of the intervenors' complaint is that the staff did not make an independent study of the environmental effects of expanding the Diversion to accommodate Limerick but, rather, relied upon the findings and conclusions contained in the DRBC final impact statement on the entire Diversion project (including the expansion). Pointing to *Calvert Cliffs' Coordinating Committee* v. *AEC*, 449 F. 2d 1109 (D.C. Cir. 1971), the intervenors assert that the course followed by the staff amounted to an impermissible abdication of this agency's NEPA responsibilities.

The portion of *Calvert Cliffs'* referred to by the intervenors dealt with the Commission's rule excluding *any* consideration of water quality matters in a licensing proceeding beyond the mere ascertainment of whether the proposed project had received a certification from the appropriate water quality agency that the plant would meet applicable water quality standards. In the court's view, that rule did not comport with the requirements of NEPA. A certifying agency might well find that, even though the plant would significantly impair water quality, it nevertheless would meet the existing standards. In such a circumstance, the court concluded, the effect of the rule would be that the potential for significant damage would be excluded from the AEC's environmental review and the Commission would therefore not perform the comprehensive weighing of costs and benefits mandated by the Act. For that reason, the court struck down the Commission's rule. 449 F. 2d at 1122-23.[34]

Calvert Cliffs' might well have been apposite here had the staff, on the strength of the fact that DRBC had reviewed the Diversion project, declined itself to give any consideration to the impact of that project in making the required overall cost/benefit assessment of Limerick. The fact is, however, that, throughout this proceeding, the staff has recognized that the incremental environmental and economic costs associated with expanding the Diversion to

[33] Since the Point Pleasant Diversion is involved in the utilization of all three potential water supply sources, the intervenors' challenge to the adequacy of its assessment has a reach beyond the Tocks Island alternative.

[34] In part at least, the result reached by the court was legislatively overruled by the Federal Water Pollution Control Act Amendments of 1972. See Section 511(c)(2) of the FWPCA, as amended, 33 U.S.C. 1371(c)(2) (Supp. II, 1972).

include the Limerick facility were relevant to the determination of those overall costs and benefits. See, *e.g.*, Tr. 5007-08. And effect was given to that recognition.

Indeed, the staff went far beyond a mere uncritical factoring of the DRBC findings into its cost/benefit analysis. Specifically, in preparing its FES on the Limerick project, the staff reviewed DRBC's final environmental impact statement on the entire Point Pleasant Diversion project. On the basis of that review, it concurred in DRBC's ultimate findings that the entire Diversion project would have a minimal adverse environmental impact—findings which had followed as comprehensive a NEPA evaluation as would have been performed by this agency. In addition, the staff looked at, and appended to the Limerick FES, the DRBC's decision on the Diversion project, which contained an even more detailed description of the environmental and economic costs of the entire project (see FES at pp. I-1 through I-5).

Although adopting the DRBC findings on the basic Diversion project, the staff offered testimony at the hearing below respecting the probable adverse effects of one portion of the project which "might be said to be used principally to carry water to the Limerick Generating Station" (Lyle following Tr. 5847 at p. 3). That testimony equated the environmental impact of that portion of the Diversion with a comparable segment of the water supply system connecting the Perkiomen with the proposed Limerick plant, which segment had been discussed in detail in the FES (*ibid.*). Based upon this analysis, the staff found additional support for the DRBC conclusion that the probable adverse impact of the Diversion, at least that portion attributable to the Limerick plant, would be minimal (*ibid.*).

Given the totality of these circumstances, we find no inconsistency with the teachings of *Calvert Cliffs*. To be sure, had it stood alone, the cursory mention of the Diversion in the text of the FES would not have satisfied the requirement that this Commission discuss the impact of the Diversion in connection with its evaluation of the Limerick facility. However, the record also includes the DRBC decision on the Diversion as well as the staff's supplemental testimony. Our independent assessment of the record as a whole convinces us that the impact of the Diversion was adequately considered and discussed by this Commission.

b. There remains for consideration on this aspect of the case the determination of the Licensing Board that the staff must prepare new draft and final environmental statements on the Diversion project. RAI-74-6 at 1131-32, 1147. The imposition of this requirement appears to have stemmed from the Board's holding, not suggested by any party, that the DRBC is not a federal agency for NEPA purposes and therefore, even if complete, the environmental statements it prepared do not fulfill the Act's mandate.[35]

[35] By its terms, NEPA applies without qualification to "all agencies of the Federal Government." 42 U.S.C. 4332, 4333.

According to the Licensing Board, the "agencies of the Federal Government" to which the procedural requirements of Section 102(2) of NEPA are directed include only those agencies "established to administer a federal statute." *Id.* at 1125. As the Board saw it, the Delaware River Basin Compact (Pub. L. No. 87-328, 75 Stat. 688) is not a federal statute but rather is a multi-state agreement. Accordingly, the Board viewed the DRBC as a "creature of state action" subject to the control of the participating states. *Id.* at 1124. It went on to hold that neither federal ratification of the Compact nor the participation of a representative of the federal government on the Commission itself was sufficient to impute a federal character to what would otherwise be an instrumentality of the participating states. *Id.* at 1123-26. To buttress this holding, the Board relied upon certain judicial decisions dealing with other interstate compacts. *Id.* at 1125. The Board also pointed to the fact that the Compact expressly provides that the DRBC is not to be considered a federal agency for purposes of several statutes enumerated therein. *Id.* at 1126.[36]

We disagree with both the analysis and the conclusion of the Board. In common with each of the parties before us, the DRBC itself, and the CEQ, we think it is plain that DRBC should be treated as a federal agency for NEPA purposes.

Under the Constitution, the several States cannot enter into agreements among themselves without the approval of Congress.[37] Accordingly, the Congress is called upon to ratify many compacts which (in common with all those referred to by the Licensing Board) involve only States as parties and contemplate no active federal role.[38]

In enacting the Delaware River Basin Compact, however, the Congress did more than simply express its consent to a multi-state agreement. Its action was distinctive in that it (1) reflected that the United States itself "join[ed]" in the Compact (75 Stat. 689) and (2) provided for a federal member on the Commission created thereby (Section 2.2). And, even more significantly for present purposes, it established that Commission "as an agency and instrumentality of the governments of the . . . signatory parties"—one of which is the

[36] On October 18, 1974, after we had held oral argument, the Licensing Board issued an unpublished addendum to its initial decision in which it commented further on the status of DRBC.

[37] "No State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State . . . ." Article I, Section 10, Clause 3.

[38] See fn. 39, *infra*.

federal government (Sections 1.2(h), 2.1).[39] Indeed, the Compact later refers to the DRBC as being a "Federal agency." Section 15.1(o).[40]

True enough, as the Board below noted, the Compact also provides that the DRBC is not to be considered a federal agency for purposes of the administration of certain listed statutes. See, *e.g.*, Section 15.1(m). But it scarcely follows that by creating an exception for purposes of those statutes, Congress intended that the general provisions acknowledging the DRBC's federal character should be given no effect for purposes of statutes not listed.

NEPA is not included in the Compact's list of statutes under which the DRBC's usual status as a federal agency is to be disregarded. Thus, the Licensing Board's result is assuredly not mandated by the terms of the Compact; to the contrary, the plain language of the Compact, read in conjunction with NEPA's applicability to "all" federal agencies (see fn. 35, *supra*), points the other way.[41]

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[39] This being so, and our concern here being with the status of the DRBC—not of other, markedly dissimilar Commissions—it is of no consequence here either that the Interstate Compact to Conserve Oil and Gas may be (as the Board referred to it) of "essentially state-character", or that judicial decisions cited by the Board refer to the Tennessee-Missouri Bridge Commission as a "bi-state corporation" and to the Waterfront Commission as a "bi-state agency" whose employees are "state and not federal officers". RAI-74-6 at 1125, citing *Petty* v. *Tennessee-Missouri Bridge Commission*, 359 U.S. 275 (1959) and *Bolger* v. *United States*, 189 F. Supp. 237, 256 (S.D. N.Y. 1960), affirmed *sub nom. Bolger* v. *Cleary*, 293 F. 2d 368 (2nd Cir. 1961), reversed on other grounds, 371 U.S. 392 (1963).

The legislation authorizing the compacts referred to by the Board contains no provisions resembling those in the legislation before us. In particular, Congress did not make the federal government a party to any of those compacts. Specifically, the Interstate Compact to Conserve Oil and Gas was an agreement among six states alone (49 Stat. 939); only Tennessee and Missouri were parties to the compact creating the Bridge Commission (63 Stat. 930); and New York and New Jersey were the sole parties to the agreement which established the Waterfront Commission (67 Stat. 541; see also *Deveau* v. *Braisted*, 363 U.S. 144, reciting the steps taken by the two States in arriving at the agreement and by the Congress in approving it).

[40] That subsection provides: "Neither the Compact nor this Act shall be deemed to enlarge the authority of any Federal agency other than the Commission to participate in or to provide funds for projects or activities in the Delaware River Basin."

[41] The legislative history of the Compact confirms that the Licensing Board's reading of its terms is in error. See, *e.g.*, S. Rep. No. 854 (87th Cong., 1st Sess., 1961), pp. 9-10, indicating that "... the Commission would be a Federal agency . . .;" referring to "the status of the Commission as a Federal agency . . .;" and stating that "the Commission would be a Federal instrumentality . . . ." See also H.R. Rep. No. 310 (87th Cong., 1st Sess., 1961), pp. 13, 15, to the same effect. In the addendum to its initial decision (see fn. 36, *supra*), the Licensing Board, in apparent reference to this legislative history (which the parties had by then brought to our attention), called it "ambiguous" and "irrelevant".

We are aware of no reasons which even arguably could justify a departure from the plain meaning of the Compact and NEPA.[42] Rather, there are substantial reasons why we should adhere to that meaning and hold that the DRBC is to be deemed a federal agency for NEPA purposes.

For one thing, the objectives of NEPA will be served if all of DRBC's major actions receive an environmental assessment.[43] Moreover, the Council on Environmental Quality, which has primary responsibility for overseeing federal agency compliance with NEPA, and whose judgment in this respect is entitled to deference,[44] is of the view that DRBC is a federal agency within the contemplation of NEPA.[45] Finally, DRBC itself is of that view. It has in the past prepared and filed with CEQ a number of environmental impact statements for projects falling within the jurisdiction conferred upon it by the Compact.[46] And DRBC has acknowledged that, in deciding whether to approve an allocation of water for this or any other project in the Basin, it is a federal agency within the meaning of NEPA.

In sum, we hold that the DRBC had authority to prepare an environmental impact statement on the Point Pleasant Diversion project in compliance with the requirements of NEPA. It was therefore entirely appropriate for this Commission's staff to use that statement as a basis for its own assessment of the impact of the Point Pleasant Diversion insofar as Limerick is concerned.

2. River Follower

Although the "river follower" alternative was not discussed in the FES for the Limerick facility, it nevertheless was analyzed by both the staff and the applicant. As is manifest from our earlier discussion of that analysis, its focus was entirely upon the relative economic costs of generating electric power. Specifically, the purpose of the study was to compare the cost of each unit of

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[42] *Cf. Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-252, RAI-75-1 1175, 1178-79 (January 6, 1975), affirmed, CLI-75-1, NRCI-75/1 1 (January 27, 1975).

[43] Although, fortuitously, the actions involved here (to the extent they touch upon the Limerick facility), will receive a NEPA review irrespective of whether one must be conducted by DRBC, this will not be true of DRBC decisions which do not involve projects sponsored or regulated by other federal agencies. Under the Licensing Board's holding, such decisions would receive no federal environmental review.

[44] See *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-247, RAI-74-12 936, 944 n. 18 (December 20, 1974).

[45] CEQ expressly approved the March 1973 agreement which delegated responsibility to DRBC for conducting the NEPA review of certain aspects of the Limerick project (see p. 174, *supra*).

[46] See, *e.g.*, 37 *F.R.* 11198 (1972); 38 *F.R.* 3618, 11126, 12848-49, 19451, 30135-36, 31558-59 (1973); 39 *F.R.* 10649-50 (1974).

power produced by Limerick operating as a "river follower" with the unit cost of power generated by, *inter alia*,an oil-fired facility of equivalent size located either (1) at the same site and thus subject to the same water supply limitations; or (2) at a different site (*i.e.*, the "Canal site") having no water supply problems.[47]

No objection has been raised to this basis of comparison, in apparent recognition of the fact that the "river follower" alternative will add no environmental costs to the construction or operation of the Limerick facility but, instead, will have simply such adverse economic impact as might be attributable to the need to reduce levels of operation at times of low flow. Although that impact perhaps could be measured in some other fashion, a convenient and not inappropriate standard is whether the end result of "river follower" operation will be that the unit cost of Limerick-generated power will exceed that of power generated by an equivalent non-nuclear plant.

The starting point of the inquiry was the explicit assumption that, in the absence of water supply limitations, each of the alternative facilities would have a capacity factor of 80%. The applicant then estimated, on the basis of its appraisal of predicted water supply and demand in the Basin over the projected life of Limerick, that the limitations to be imposed by DRBC would reduce to 70% the average capacity factor of any facility—nuclear or non-nuclear—located at the Limerick site. For its part, the staff envisaged a somewhat larger reduction (to an average capacity factor of 66%).

No one disputes that a nuclear facility with an average capacity factor of 70% (or even 66%) is more economical than an equivalent oil-fired plant with the same capacity factor. Moreover, no party has questioned that, given the underlying assumptions of the analysis, the nuclear facility at Limerick would be economically preferable to an oil-fired plant at the Canal site with (because of no water supply limitations) an assumed 80% capacity factor.[48] The intervenors do, however, challenge the basis upon which the assumed capacity factors were derived.

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[47] At the oral argument before us, the intervenors expressed the view that the "river follower" Limerick also should have been compared with a nuclear plant constructed at a site free of water supply problems (App. Tr. 27-28). Specific reference was made to the Tohickon site, located on the Delaware north of Trenton. Tohickon was discussed in the FES (at pp. 10-3 through 10-7). The conclusion reached was that that site (as well as the several other potential sites in the Delaware River Basin analyzed in the FES) would be exposed to the same water restrictions as the Limerick site. *Id.* at pp. 10-4 to 10-5. The intervenors did not call our attention to anything in the record contradicting that conclusion.

[48] We do not discuss here another alternative considered below—that of an oil-fired plant employing dry cooling towers. Suffice it to note that neither we nor the parties see any occasion to give that alternative additional consideration.

a. Historical water flow data constituted a prime ingredient of the estimates of the impact of "river follower" operation upon the capacity factor of facilities located at Limerick. The intervenors evince skepticism respecting whether, as used, that data provided a foundation for predicting the amount of water which would be available to Limerick over its lifetime. We were told as argument, for example, that there was insufficient consideration given to how likely it is that the natural conditions which influenced water flow levels in the past (such as temperature and precipitation) will be repeated (App. Tr. 17). The short answer to this claim is that the period of time over which the data were amassed—some 44 years—was long enough to insure that the sum total of that data took account of, but was not unduly influenced by, aberrational conditions occurring in one or more specific years. The intervenors may be suggesting the possibility that general climatic conditions may change significantly, with the consequence that the temperature and precipitation norms for the prior 44 year period will not continue over the life of the reactor. If so, it was their burden to come forward with evidence indicating that this possibility is more than simply theoretical. *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-226, RAI-74-9 381, 388-89 (September 5, 1974); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, RAI-73-5 331, 345 (May 18, 1973); *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, *supra*, RAI-73-11 at 1018-19. In the absence of such evidence, and here there was none, it was entirely reasonable to employ the historical data in predicting future water flow levels.[49]

To be sure, in estimating how much water would be available to Limerick, consideration had to be given to the totality of the likely demand upon the projected supply. In this connection, the intervenors assert that the staff's forecast of additional demands for water in the Basin is suspect because the staff did not consult certain municipalities respecting their planned growth and development. Our review of the record discloses that the staff, in independently reviewing the TAMS report, obtained an overall evaluation of growth in demand from DRBC rather than by contacting each municipal user separately (Tr. 5311-14). Given DRBC's responsibility for water supply conditions in the Basin

[49] The DRBC restricts or forbids consumption of water from the Schuylkill not only in periods of low water flow but also (unless certain special conditions are met) when the water temperature is in excess of 15°C (FES, p. I-12). At certain times of the year, water temperatures would preclude consumption of Schuylkill water even though water flow levels would be adequate to permit withdrawals. In predicting how often and to what extent water temperature alone would reduce plant capacity, the TAMS report utilized historical water temperature data recorded at Reading and Pottstown, approximately 17 miles and 5 miles, respectively, upriver from the Limerick site (see TAMS p. 7). The intervenors argued below that those data could not properly be used to predict water temperatures at Limerick; accordingly, they claimed, the applicant's estimates of temperature-induced restrictions on water availability were unreliable.

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and its control over all consumptive users in the Basin through the comprehensive plan, and absent any showing in the record that the information provided by DRBC was inaccurate, we see nothing in the staff's actions which would cast doubt upon the accuracy of the demand adjustments.

b. A related contention which the intervenors appear to advance is that the historical data did not permit a judgment respecting the probability that any specific set of climatic conditions will occur in any given future year. As we understand it, the complaint is that, even if the data were a reliable indicator of the total number of days during the life of the facility on which plant operation would be affected by water supply limitations, there is no way of predicting how those days will be distributed among each of the years. Although this refinement conceivably might have had some marginal utility, the intervenors have not favored us with an explanation as to how the refinement could have been achieved (let alone how it might have affected the ultimate result here).

c. Although we have found the intervenors' criticisms of the "river follower" analysis to be without merit, our task does not end there. We must also determine whether, for some other reason, the analysis might be fatally deficient.

The Licensing Board held that the "environmental bases" of the "river follower" analysis were "not complete". RAI-74-6 at 1128.[50] The Board's decision does not specify the precise reasons which led it to reach that

(Footnote 49 continued)

The intervenors have not pressed that argument before us. In any event, our review of the record satisfies us that no additional reduction of the plant capacity factor is warranted. To be sure, the applicant was unable to demonstrate that there was any correlation between the water temperature readings at Reading and those taken at the same time at Pottstown (Tr. 3717-18, 3721-22). *A fortiori,* little weight could be given to the Reading data in predicting the temperature of the waters even further downstream, at Limerick. The Pottstown data, however, could be used for that purpose. For, in response to a Licensing Board inquiry (Tr. 3723-24), the applicant did analyze data which—although never introduced into evidence and involving only a relatively brief period (see Tr. 3723 and 5978)—led it to conclude that, in general, water temperatures at Limerick were 2° lower than those at Pottstown (Tr. 5980-81). This being the case, the applicant was conservative in using the unadjusted Pottstown data to predict the extent to which there might be excessive water temperatures at Limerick. Moreover, as the TAMS report reveals, the effects of reduced water flow are felt first in the Schuylkill, and only later in the Perkiomen and the Delaware. Thus, as the applicant later explained, in the periods of concern here—*i.e.*, when water flow in the Schuylkill is adequate but excessive water temperature prohibits withdrawals—water flow would be adequate to permit withdrawals from the other two rivers, which are not covered by water temperature restrictions (Tr. 5548-49, 5995).

[50] Notwithstanding the Licensing Board's finding to the contrary (see RAI-74-6 at 1118-19, 1128), we conclude that that analysis of the "river follower" alternative was complete insofar as health and safety considerations were concerned. The only safety matter raised by the "river follower" method is whether the plant will have sufficient water available to maintain proper cooling during emergency shutdown. DRBC's decision in Docket No. D-69-210 CP adequately assures the plant of sufficient water for any

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conclusion (see *id.* at 1127-28). Its comments during the course of the hearing, however, reveal that it believed the analysis to be deficient because of two aspects of the staff's assessment: (1) the failure to duplicate the computation of water availability presented in the applicant's TAMS report and (2) the brevity of the consultation with DRBC (one telephone conversation) for the purpose of verifying the data underlying the historical flow records and future demand predictions contained in the TAMS report. Tr. 5016, 5296, 5301, 5305-07, 5328-30. We do not share the Board's concern on either score.

In analyzing the predictions of water availability in the TAMS report, the staff consulted with the DRBC and the Corps of Engineers to determine whether data from either of those agencies could be obtained to prepare a new water availability prediction. From the information supplied by those agencies, the staff determined that the data used in the TAMS report were the best available, and that, given the validity of the TAMS data and the built-in conservatisms in the TAMS calculations, a completely new computation was unnecessary (Tr. 4888-89, 5297-99, 5304-05). The staff's determination is supported by the fact that (1) the USGS data used in the TAMS report (see p. 171, *supra*) were the only complete collection of flow data available for the Delaware River Basin (and thus, any new predictions of water availability would be based, of necessity, on the same data used in the TAMS report)[51], and (2) the independent DRBC estimates of future flow levels for the Basin, obtained and reviewed by the staff, were substantially less conservative than those contained in the TAMS report. Tr. 5335, 5549-50. In these circumstances, the staff was entirely justified in choosing to review the TAMS report rather than to prepare a *de novo* computation.

Insofar as the alleged brevity of the staff-DRBC consultation is concerned, the record reflects that the staff's hydrologist and the DRBC representative had before them the TAMS report, and that their joint review covered the historical data and the future supply and demand predictions for the Basin. On the basis of the information provided by DRBC together with his own knowledge of the Basin water situation, the staff's hydrologist was able to satisfy himself that the supply and demand adjustments made in the TAMS report were reasonably accurate and current. Tr. 5308-12. The Licensing Board has not explained what additional information the hydrologist should have acquired from the DRBC.

A more serious question to us is the validity of certain of the assumptions employed in determining the relative capacity factors of the several alternative

(Footnote 50 continued)
operational emergency by suspending the minimum flow requirements and water quality limitations applicable to the Schuylkill in such an emergency. FES at pp. I-9, I-12. Under that decision, the plant would have available to it sufficient water from the Schuylkill to achieve safe shutdown at all times.

[51] All of the USGS data were made available to the Board and to each of the parties during the course of the evidentiary hearings (Tr. 5713-14).

facilities considered. Specifically, as we have seen, it was assumed (1) that, any applicable water limitations not taken into account, nuclear and oil-fired generating plants of the size of the Limerick facility have the identical capacity factor—80%, and (2) that the DRBC water limitations would have the same effect upon nuclear and oil-fired plants located at the Limerick site (*i.e.*, would reduce their capacity factors by the same amount). Although neither assumption has been expressly challenged on the appeals, at the same time no party has asked us to disturb the Licensing Board's finding that, at least with respect to a nuclear facility, an initial capacity factor of 70% rather than 80% should have been selected for analysis purposes. RAI-74-6 at 1132-33. The Board offered no opinion on whether the same percentage should have applied to oil-fired plants. Nor did it discuss what impact the use of the lower percentage would have upon the conclusions reached by the applicant and the staff on the economic advantage question. We must therefore explore the matter without its aid.

At the outset, there seems to be no reason on this record to doubt the validity of the premise—seemingly accepted by all of the parties—that, the effect of any water limitations to one side, large nuclear and oil-fired plants can be expected to operate at approximately the same percentage of full-rated capacity—be it 80%, 70% or some other figure. Specifically, neither the record nor anything which might be officially noticed suggests that a nuclear plant is likely to experience more down-time than its oil-fired counterpart because of normal or extraordinary maintenance requirements. This being so, if a 70% initial capacity factor should have been employed for the nuclear facility, no greater percentage should have been assigned to the oil-fired plant.

In these circumstances, the crucial inquiry is not whether the Licensing Board rightly found the initial capacity factor to be 70% for the Limerick facility. Instead, it is whether the applicant and the staff were justified in assuming that the DRBC water limitations would affect both type facilities equally. For, if that assumption is appropriate, it follows that—using either an 80% or a 70% initial capacity factor—nuclear and oil-fired plants at the Limerick site would both operate at the same level and that that level would be no less than 56%.[52] The record discloses that, so long as the nuclear plant has a capacity factor of at least 50%, it is economically superior to an oil-fired plant having the same capacity factor.[53]

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[52] As will be recalled, the staff estimated a 14% reduction in operating capacity due to water limitations (which was 4% greater than the applicant's estimate). It was, of course, based upon an 80% initial capacity factor. If that factor is lowered to 70%, the further reduction occasioned by water limitations should not be as great. This is because, to some extent, outages necessitated for repair and maintenance could be expected to coincide with the periods during which operations would be affected by water limitations.

[53] Insofar as an oil-fired plant at the Canal site is concerned, we have not been asked to reject the conclusion that, operating at 80% of full-rated capacity, it would not be economically superior to a nuclear plant at Limerick having a 66% capacity factor. Although (as a result of relatively high capital costs) the nuclear plant's comparative economic

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Turning to the probability that the DRBC water limitations would affect alike nuclear and oil-fired plants located at the Limerick site, the FES indicates (at p. 10-9) that an oil-fired plant would consume approximately 40% less water than its nuclear equivalent. This suggests to us that, on at least some occasions, the water limitations would fall more heavily upon the nuclear plant. The record sheds no light upon how much greater that burden might be. It is apparent, however, that the intervenors did not consider it to be appreciable. For, once again, although challenging several aspects of the "river follower" analysis, they have not contended that we should reject the analysis for the reason that a materially erroneous assumption was made regarding the impact that the water limitations would have upon an oil-fired plant at the Limerick site.

There being nothing before us requiring a rejection of the intervenors' tacit concession that the water limitations would not have a *materially* different effect upon the two types of plants, we decline to pursue this matter further. We possess, of course, independent responsibilities which have frequently led us to insist upon the further development of a seemingly incomplete record on specific issues not put into contest by the parties. See, *e.g., Commonwealth Edison Co.* (La Salle County Nuclear Station, Units 1 and 2), ALAB-153, RAI-73-10 821 (October 19, 1973). But we see no compelling necessity to follow this routine with regard to a possible imperfection in an intricate analysis of one environmental aspect of a proposed reactor in circumstances where, as here, it is neither contended nor made apparent by the record that that imperfection may have brought about an erroneous ultimate conclusion.

d. It follows from the foregoing that the analysis conducted by the applicant and the staff was adequate to support the conclusion drawn therefrom that, operating as a "river follower", the Limerick facility would not suffer an economic disadvantage as compared with those other Delaware River Basin alternatives which likewise would not involve the construction of new water storage facilities. The intervenors insist, however, that even if this is so, the results of the analysis could not play a part in the overall NEPA assessment without there first taking place the issuance and circulation of a new draft environmental statement.

This assertion manifestly comes too late. The FES issued in November 1973. The environmental hearing commenced the following month, during which the applicant and the staff extensively addressed the "river follower" alternative. The intervenors interposed no claim at that time that the receipt of evidence on this alternative was precluded by the failure of the FES to have analyzed it. Nor

(Footnote 53 continued)
advantage would not be as large if the capacity factors were instead 70% and 56% respectively, we are satisfied from our own study of the data that that advantage would not disappear entirely.

did their proposed findings and conclusions make any such claim. Rather, the intervenors waited until the oral argument was before us to raise the point.

In any event, we think the assertion lacks substance. Apparently it was prompted by the Licensing Board's characterization of the "river follower" alternative as a "complete alteration of the proposal" for the Limerick facility (which assumed the prospective availability of Tocks Island). RAI-74-6 at 1128. In our view, that characterization is not accurate.

The nub of the applicant's proposal is the construction of a nuclear power plant along the Schuylkill which, among other things, will be cooled by water drawn from the river. Adoption of the "river follower" alternative, should the Tocks Island project be unavailable, would not either (1) alter the location or dimensions of the facility or the means by which it is to be cooled; or (2) increase or diminish the environmental costs associated with plant operation. Rather, the single effect would be that, at certain times, the facility would not be able to take as much water out of the Schuylkill as it would if that river's supply were being enhanced from the Tocks Island reservoir—with the consequence that less power could be generated at those times.

Thus, far from constituting a "complete" (or indeed even a major) alteration of what the applicant initially proposed, the "river follower" alternative involves only the amount of water which would be at the disposal of the applicant and, therefore, the quantum of the benefit (in terms of generated power) that would be derived from the Limerick facility. And, as we have seen, the necessity for an exploration of that alternative stemmed solely from the fact that it will determine the supply of water should (1) contrary to the initial expectation of the applicant (and the continuing desire of DRBC), the Tocks Island project not be authorized; and (2) DRBC does not in 1977 approve the construction of a supplemental reservoir by the applicant.

In the totality of these circumstances, we see no reason why the "river follower" alternative could not be first considered at the hearing—without incurring the delay which would have been occasioned by a recasting of the FES and a recirculation of it. Once again, the substitution of "river follower" for Tocks Island would simply reduce the benefits to be derived from the facility without adding anything on the environmental cost side of the scale. The intervenors had ample opportunity at the hearing to present their position on whether that benefit reduction would tip the NEPA balance against the construction of the Limerick facility. And it was, of course, the Licensing Board's responsibility to strike the ultimate balance on the basis of all of the evidence before it. In this connection, the intervenors have not even attempted to establish that further illumination might have been shed on the viability of the "river follower" alternative had it been included in an amended draft environmental statement which was made available for general comment.

We need add only that our research has uncovered no judicial decision applying NEPA which cuts against the conclusion we reach. We think this

scarcely surprising in view of the rule of reason which governs in the administration of that statute. *Natural Resources Defense Council, Inc.* v. *Morton,* 458 F. 2d 827, 834 (D. C. Cir. 1972). To us at least, there would be nothing reasonable at all about an iron-clad requirement that the FES be redone, in advance of an adjudicatory hearing on environmental issues, whenever a late development raises the possibility that the project may be somewhat less beneficial than previously thought.[54]

3. Supplemental Reservoir

As we have seen, the supplemental reservoir has received to date simply a generic evaluation. We conclude that this evaluation does not provide a sufficient foundation for any ultimate NEPA judgment respecting the acceptability of Limerick should that alternative be employed.

It is abundantly clear that, at this juncture, the staff could do no more than attempt to identify and appraise the environmental costs which would likely be incurred no matter which of the numerous potential sites in the Delaware River Basin might eventually be selected by DRBC as the most appropriate locale for a supplemental reservoir. And we are satisfied from the evidence of record that, in carrying out this undertaking, the staff used the best information currently available on the range of probable effects a supplemental reservoir would have.

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[54] Although not cited by the intervenors, we are aware, of course, of both *NRDC* v. *Morton,* 337 F. Supp. 170 (D.D.C. 1972) and *I-291 Why? Association* v. *Burns,* 372 F. Supp. 223 (D. Conn. 1974). In the former, the court held that an addendum prepared to cure a deficiency in the original environmental impact statement had to be recirculated for "comment and review". In *I-291 Why?,* a highway project was enjoined in circumstances where the results of belated studies made of certain environmental consequences of the project (*e.g.,* increased noise and impact on air quality) were neither included in the environmental impact statement nor considered by anyone other than the official (an engineer in the employ of the Federal Highway Administration) who had the authority to approve federal funding of the project.

We need not catalog the many distinctions between those cases and the one at bar. It suffices to note two differences. First, unlike the "river follower" analysis here, the evaluations at issue in *NRDC* and *I-291 Why?* considered, respectively, (1) total alternatives to the proposed project which might have fewer environmental consequences; and (2) the dimensions of readily identifiable environmental costs associated with the proposed project (a matter which had been glossed over in the environmental impact statement). Second, not having been circulated, the *NRDC* and *I-291 Why?* evaluations were available for appraisal only by the agency officials making the ultimate decision on the project. Not so here. Under the procedures of this agency, the analysis was put forward at a public, adjudicatory hearing and was fully tested. And Commission regulations not only contemplate that the ultimate NEPA judgments be made on the basis of the entire record before the adjudicatory tribunals but, as well, that the findings and conclusions of those tribunals be deemed to amend the FES (insofar as different therefrom). 10 CFR (1974 ed.) Part 50, Appendix D, Section A.11; 10 CFR 51.52(b)(3), 39 *F.R.* 26285 (July 18, 1974).

Given the site-dependency of many of the specific environmental consequences of a reservoir, it is difficult to see how the staff could have further narrowed that range without reference to a particular site.

To conclude, as we therefore do, that the staff made a "good faith effort . . . to describe the reasonably foreseeable environmental impact" of the supplemental reservoir alternative (see p. 183, *supra*) does not, however, end the inquiry. The question remains whether the product of that effort was sufficient to allow the Licensing Board "to arrive at a reasonably accurate decision regarding the environmental benefits and detriments to be expected" from the operation of the facility in conjunction with a reservoir. *Sierra Club* v. *Froehlke*, 486 F. 2d 946, 950 (7th Cir. 1973).

We think not. As it did to the Licensing Board (RAI-74-6 at 1122-23), the generic evaluation appears to us to contain insufficient information about the environmental effects of a reservoir to permit a balancing of the costs and benefits of the plant with that configuration. Due to the site-dependent characteristics of a reservoir's environmental impact, the generic evaluation does not offer a solid foundation upon which the costs of a specific reservoir can be reasonably forecast and a reasonable comparison with other alternatives drawn.

In this connection, we do not agree with the staff that the generic evaluation provides an "envelope" within which *any* reservoir selected by DRBC can be expected to fit. Rather, the evaluation amounts to a general description of the Delaware River Basin as a potential location for a supplemental reservoir of the type which could be used with the Limerick plant. The information provided by DRBC, from which the generic evaluation was derived, was first and foremost a catalogue of the types of environmental consequences DRBC would expect to encounter in its site selection process based upon that agency's overall knowledge of the Basin. In the words of DRBC, that information was "representative only", was unsubstantiated by any field surveys or technical reviews, was at best "qualitative and subjective", and was not all inclusive. FES at p. H-29; see pp. 174-175, *supra*. Although that preliminary review may be sufficient to support some general conclusions on the relative suitability of the Delaware River Basin as a location for supplemental reservoirs, it does not suffice as a foundation for the finely tuned balancing process required to determine whether the supplemental reservoir alternative is here justified on a cost/benefit basis.[55]

[55] When taken in conjunction with other disclosures of record, the generic evaluation does provide, however, an adequate basis for rejecting the still further alternative of constructing the nuclear facility at Peach Bottom, the best available site in the Susquehanna River Basin. There are substantial disadvantages to siting at Peach Bottom in lieu of Limerick (see, *e.g.*, Lyle testimony following Tr. 5643); accordingly, there would be no reason to choose Peach Bottom in the absence of a clear indication that a supplemental reservoir in the Susquehanna River Basin would be markedly preferable to one located in

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C. The Legal and Factual Conclusions Flowing from the Assessments of the Water Supply Alternatives

1. On the basis of the preceding discussion, the following appears respecting the three alternatives for supplying water to the Limerick facility:

(i) From both an environmental and an economic standpoint, Tocks Island is the best of the water supply alternatives since it would neither add any significant environmental or economic costs to Limerick nor occasion any operating penalty because of water limitations. There is, however, a lack of assurance that the Corps of Engineers will ever be authorized to construct the project.

(ii) The "river follower" alternative similarly does not increase the environmental costs associated with the facility. But resort to that alternative would involve the imposition of a penalty upon operation. Although the penalty would not raise the unit cost of generating Limerick power above that of generating non-nuclear power at the same or a different site, it would affect the overall cost/benefit balance for the facility. Whether, if Limerick is built, it will be limited to operating as a "river follower" will depend upon two considerations: (a) the fate of the Tocks Island project; and (b) if Tocks Island is not authorized, the results of the DRBC appraisal of one or more specific sites available for the construction of a supplemental reservoir.

(iii) The supplemental reservoir alternative, in common with Tocks Island, would not have the effect of reducing the efficiency of the Limerick facility. It would, however, add to the overall environmental impact of the facility in an as yet undetermined amount (as well as require the applicant to assume the expense of reservoir construction), and thus would have an effect upon the overall cost/benefit balance for Limerick. The purpose of the DRBC site appraisal will be to ascertain just how great the environmental impact would be. Further, it is probable that the DRBC will direct that a reservoir be built if it is satisfied that the environmental and economic costs attendant to it weigh less heavily on the scales than the operating penalty inherent in the "river follower" alternative.

Given these facts, we conclude that:

(i) Construction of the Limerick facility should not be now authorized on the basis of an overall cost/benefit balance which presupposed employment of either the Tocks Island or the supplemental reservoir alternative. Whether Tocks Island will be constructed is a matter of conjecture, and neither this agency nor the DRBC will make the decision. And the environmental review of the

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(Footnote 55 continued)
the Delaware River Basin. The generic evaluation reflects that such is not the case. Far from possessing any extraordinary features which might detract from its suitability, the Delaware River Basin was found to be a relatively good location for a supplemental reservoir. FES, pp. H-30 through H-35.

supplemental reservoir alternative has not reached the point where a complete overall cost/benefit analysis can be made of the Limerick facility premised upon its adoption.

(ii) The "river follower" alternative stands, however, on a markedly different footing. Sufficient information is now available to strike an overall cost/benefit balance for the Limerick facility operating without the advantage of the storage capacity of a reservoir. If that balance justifies the facility, there is no reason to withhold approval of construction simply because of the contingency that one of the two other alternatives might later be adopted. This is because the Tocks Island alternative is plainly preferable and the supplemental reservoir alternative will be chosen only if DRBC decides, upon NEPA analysis, that it too compares favorably with "river follower". In short, Limerick could be sanctioned on the premise that it will operate as a "river follower" without incurring the risk that some other water supply alternative might be selected which would tip the overall NEPA balance against the facility.[56]

The intervenors nevertheless maintain that there is a legal obstacle to authorizing construction in advance of a full evaluation of each of the water supply alternatives and a final determination as to which will be employed. We are referred to the line of decisions of which *Named Individual Members of the San Antonio Conservation Society* v. *Texas Highway Department*, 446 F. 2d 1013 (5th Cir.), *cert. denied*, 403 U.S. 932 (1971), and *Committee to Stop Route 7* v. *Volpe*, 346 F. Supp. 731 (D. Conn. 1972) are representative.

The *San Antonio* case involved an attempt by federal and state agencies to divide a proposed expressway connecting the San Antonio airport and downtown San Antonio into three separate projects. Specifically, the agencies sought to separate the project into a northern segment (connecting the airport with the northern boundary of a park), a southern segment (connecting the southern boundary of the park with the center of the city), and a central segment (which would connect the northern and southern segments by running a six or eight lane expressway directly through the park). 446 F. 2d at 1014-17. Without preparing an environmental assessment of any of the three segments or otherwise considering the effect of the expressway on the park, the Secretary of Transportation authorized construction of the two end segments. The Fifth Circuit held that the Secretary had acted improperly: before approval was given to the end segments, an evaluation should have been made of the effects of building the center segment and of alternatives to using the park land. Were construction of the end segments allowed to proceed before evaluating the effects of the project on the park, the court reasoned, the result would be to

[56] Obviously, authorization of construction on that premise would not foreclose a later selection of one of the other water supply alternatives if available and found preferable.

"make destruction of further parklands inevitable, or, at least [to] severely limit the number of . . . alternatives to avoid the Park." *Id.* at 1023.[57]

A similar segmentation of a highway project was struck down in *Committee to Stop Route 7.* There, the reviewing federal agency had sought to limit its consideration in each impact statement to a single three-mile portion of the proposed highway (which was to extend over a 31-mile distance). Such a segmentation, the court found, would prevent, at least at the initial stages, any assessment of the probable total impact of the highway, and would preclude any meaningful consideration of alternate methods of accomplishing the ultimate objectives of the project, as well as alternate routes and designs for the highway itself. As the court saw it, the practical effect of the agency's approach would be to limit the project to a route which, once the total effects of the project were known, might not be the preferred alternative. By then, however, the agency would be so committed to the project as originally cast (by reason of the ongoing construction) as to prevent the selection of what would otherwise be the better alternative.

These decisions, and others to the same general effect,[58] are plainly inapposite here. Should we approve construction of Limerick, it will be on the basis of a full analysis of the benefits and costs associated with the *total* facility operating as a "river follower". At least implicit in such approval would have to be the judgment founded upon that analysis that, as a "river follower", Limerick is superior on a cost/benefit balance to any alternative to the construction of a nuclear plant at this site (*e.g.*,the building of an oil-fired plant or the placing of a nuclear plant at some other site). The only question that will remain open is whether Limerick's net benefit would still further be enhanced were its water supply to be augmented by a reservoir. Although the answer to that question must abide the event of the DRBC appraisal of specific sites, we reiterate that the commencement of Limerick construction will not inhibit, let alone foreclose, giving effect to whatever determination DRBC should make. If (assuming the unavailability of Tocks Island), DRBC should find that a supplemental reservoir will increase the *net* benefit of Limerick, nothing will

[57] Although the court in the *San Antonio* case reached its conclusion on the segmentation question on the basis of Section 4(f) of the Department of Transportation Act of 1966, 23 U.S.C. 138, and not NEPA, a subsequent Fifth Circuit decision has noted that the court's reasoning on the segmentation question is applicable to NEPA as well. See *Sierra Club* v. *Callaway*, 499 F. 2d 982, 986-87 (5th Cir. 1974).

[58] See, *e.g.*, *Atchison, Topeka and Santa Fe Ry.* v. *Callaway*, 382 F. Supp. 610 (D.D.C. 1974).

stand in the path of a direction to the applicant to build the reservoir. This will be true even if, by that time, the construction of Limerick has been substantially completed.[59]

2. As we have seen, the analysis made of the Limerick facility "river follower" by the staff and the applicant was restricted to determining whether electricity might be generated more inexpensively by a plant which was either of a different type or sited at another location (or both). The conclusion reached was that, although the comparative unit cost advantage enjoyed by Limerick would be greater were the facility not confronted with any water supply limitations, the necessity to reduce levels of operation during times of low natural flow in the Delaware River Basin would likely not eliminate that advantage altogether.

We have accepted this conclusion. But, standing alone, it does not compel the judgment that the net benefit of the "river follower" Limerick will exceed that of, *e.g.*, a non-nuclear plant at the same or some other site. The monetary outlay involved in constructing and operating a generating station is only one ingredient of the overall cost of the facility. Of at least equal importance is the environmental impact of construction and operation. Thus, in comparing the net benefit of a "river follower" Limerick with that of the various other facilities which might be substituted for it, environmental as well as monetary considerations must be taken into account.

The environmental effects associated with the Limerick facility and with various potential substitutes for it were set out in some detail in the FES. Water supply matters to one side, there was little dispute among the parties as to the correctness of the FES's delineation of the environmental consequences of Limerick and its alternatives. We can, therefore, use the information presented in the FES as the foundation for our own analysis.

We need not recite in detail the environmental costs which would be incurred by adopting the Limerick proposal. The FES adequately describes Limerick's impact in terms of commitment of resources, land use, water quality, disturbance or destruction of terrestrial wildlife and aquatic organisms, increased noise and traffic during construction, visibility of the cooling towers, waste discharges, and potential accidents. FES, pp. 4-1 through 4-3, 5-1, 5-10 through 5-28, 8-1 through 8-9. Nothing in the description of these costs indicates that any unusual environmental damage will be occasioned by use of the Limerick site. In other words, the environmental costs associated with Limerick are no

[59] In fairness to the intervenors, it should be noted that their segmentation argument would have had merit if the Licensing Board had been right in holding that neither the "river follower" nor the supplemental reservoir alternative had been satisfactorily analyzed. In such circumstances, authorization of construction might have had precisely the practical effect which was of concern to the courts in the highway cases.

different in kind or extent from those which accompany the construction and operation of any large nuclear facility.

No advantage in terms of water availability would be gained by moving the nuclear facility to another site (see fn. 47, *supra*). This being so, and there being no unique environmental costs stemming from Limerick that might be avoided elsewhere, the alternative of constructing a nuclear facility at another site is not attractive. This conclusion holds true even when the scope of possible sites is expanded to include those outside the Delaware Basin. For, as discussed earlier, water availability problems are present at the site described as the best in the Susquehanna Basin (*i.e.*, Peach Bottom); at the same time, use of that site would add significantly to the costs of transmitting the electricity produced to the portion of the service area which this facility was intended to serve.

Sites in the Susquehanna Basin might have to be examined more closely if it appeared that a supplemental reservoir could be located in the Susquehanna Basin more readily and at less environmental cost than in the Delaware Basin. But the evidence points in the other direction (see fn. 55, *supra*). In short, the Limerick site is the preferable one for the location of a nuclear facility regardless of whether the applicant were permitted only to operate the facility as a "river follower" or whether it eventually were to gain permission to construct a supplemental reservoir.

The remaining alternatives to the Limerick facility that have to be considered here are (1) an oil-fired plant at the same site, also operating as a "river follower"; and (2) an oil-fired plant at some other site which would not be affected by water availability problems.[60]

The FES compared the nuclear facility at Limerick with an oil-fired plant at the same site, utilizing the assumption that both plants would operate at an 80% capacity factor. FES, pp. 10-9 to 10-10, 12-1 to 12-3, 12-6. The nuclear facility would possess substantial advantages, in both the economic and the environmental spheres. *Ibid.* For purposes of determining whether Limerick as a "river follower" is justified, however, the capacity factor for each plant must be reduced significantly (see pp. 190, 195, *supra*). Doing so simply decreases the economic advantage of the nuclear plant, without affecting the environmental portion of the equation. The reduction in capacity, then, does not change the outcome.

Our conclusion in this regard is not altered by the fact that the balance struck in the FES did not take account of the environmental cost of the nuclear fuel cycle. This was appropriate, for at the time the FES was issued, the fuel cycle was the subject of a rulemaking proceeding; in instituting that proceeding, the Commission had directed that, pending its outcome, the fuel cycle was not

[60] On both economic and environmental grounds, the FES flatly rejected (pp. 10-8 to 10-9) the alternative of a coal-fired plant. No party complains of that rejection, which appears to us to have been well-founded.

to be considered in individual licensing proceedings. See *Vermont Yankee Nuclear Power Corporation* (Vermont Yankee Station), ALAB-179, RAI-74-2 159, 163-64 (February 28, 1974), appeal pending *sub nom. Natural Resources Defense Council* v. *Atomic Energy Commission* (Docket No. 74-1385, D. C. Cir.).

After the Limerick hearing closed, the Commission promulgated a rule concerning the fuel cycle. 10 CFR Part 50, App. D, §A.15 (1974 rev.), 39 *F.R.* 14188 (April 22, 1974), effective June 6, 1974. In essence, the rule assigned values to the various costs inherent in the fuel cycle, and required that the values assigned be considered in the environmental evaluation of each facility. The rule did not, in terms, establish a procedure to be followed in cases, like this one, in which the hearing had been closed prior to the promulgation of the rule. Later, however, the Commission affirmed our decision that the addition of the fuel cycle costs specified in the rule would not have materially affected the result in a case which was on appeal when the rule was promulgated; in doing so, the Commission indicated that licensing and appeal boards should take "appropriate action" to consider the rule's values when necessary. *Philadelphia Electric Co.* (Peach Bottom, Units 2 and 3), CLI-74-32, RAI-74-8 217, 219-20 (August 8, 1974), affirming ALAB-216, RAI-74-7 13, 35-36.

In the proceeding at bar, we allowed the intervenors, which were prompted by a decision interpreting the fuel-cycle rule,[61] to file a belated exception which complains of the Licensing Board's failure to consider fuel cycle costs. Given the values which the rule assigns to those costs, the outcome in this case (as that in *Peach Bottom*) is not affected by adding in those costs.

All else being equal, an oil-fired facility located at a site not burdened with water supply problems would be preferable to an oil-fired facility operating as a "river follower" at the Limerick site. It does not follow, however, that such an alternative is preferable to a nuclear-powered "river follower" facility at Limerick. Indicating that the so-called "Canal site" presented no water availability problems for an oil-fired facility, the NERA study evaluated the economic consequences of such a facility located there. The record does not reveal either the precise location of that site or the nature of the environmental conditions which might be encountered there. For purposes of our environmental analysis of potential alternatives, we will assume that a generating facility located there would occasion no significant, adverse site-related environmental consequences. In other words, we will assign to it only those consequences which are associated with oil-fired plants generally (those consequences are discussed in the FES at pp. 10-9 to 10-10, 12-2 to 12-3).

From the NERA study, we can conclude that the nuclear facility forced to operate as a "river follower" retains a small economic advantage when compared

[61] *Potomac Electric Power Co.* (Douglas Point Station), ALAB-218, RAI-74-7 79 (July 15, 1974).

to an oil-fired facility whose capacity is not so limited. See fn. 53, *supra*. But the comparison does not end there. For, notwithstanding that the nuclear facility's electricity will carry a lower unit cost, the oil-fired facility will be generating more electricity. In that respect, it will thus be producing a greater "benefit" (albeit at a higher cost) to offset against its environmental costs than would the nuclear facility. See ALAB-179, *supra*, RAI-74-2 at 172-76.

The present record will not support a conclusion that this factor tips the balance against the nuclear facility at Limerick. As we have noted, the environmental costs of a nuclear facility are substantially less than those of an oil-fired plant, and there are no unusual environmental costs associated with the Limerick site. See pp. 202-203, 203-204, *supra*. Consequently, although Limerick's overall benefits, in terms of the quantum of electricity produced, may be smaller than those of an oil-fired plant at the Canal site, the net benefit, after all costs are deducted, is larger for Limerick, particularly when the potential problems of oil availability and cost are considered in the balance (FES, pp. 10-9 to 10-10).

For these reasons, we conclude that the nuclear facility at Limerick, operating as a river-follower, is superior to all other alternatives considered, with the exception of the same facility supplied with water from Tocks Island and the possible exception of the same facility utilizing a supplemental reservoir.[62] Limerick can be given a construction permit now on this basis.

IV. RESULT

In light of the above, and the fact that our customary *sua sponte* review of the remainder of the initial decision and the underlying record has disclosed no error warranting corrective action, we can agree with the Licensing Board's ultimate determination that construction permits for the two Limerick units could properly be issued at this time. As we have endeavored to make clear, however, in several important respects we have parted company with the reasoning which led the Licensing Board to reach that determination. One consequence is that we cannot accept the condition which the Board attached to the license (see p. 177, *supra*). The latter portion of that condition, requiring this Commission to conduct its own environmental review of any DRBC decision

[62] In reaching this conclusion, we have considered the intervenors' argument that the water charges which will be imposed by DRBC were not sufficiently taken into account by the staff. These charges will be assessed against any generating plant—irrespective of how fueled—which is located in the Delaware River Basin. At the time of the hearing below, the prescribed rate was approximately four cents per thousand gallons for consumptive use and one-tenth of that for non-consumptive use (Tr. 5107). This rate exceeds the rate assumed by the FES (Tr. 5105-06, 5131). But the water charges based upon its application would amount to approximately .003 cents per kwh generated. In these circumstances, they scarcely can be taken as having a significant impact upon the cost/benefit balance for the Limerick facility.

authorizing a supplemental reservoir, stemmed from the Board's mistaken view as to the status of the DRBC. The DRBC being a federal agency for NEPA purposes, it will now be for that agency alone to determine whether the construction and utilization of a supplemental reservoir represents a better alternative than operation as a "river follower". If its determination is in the affirmative, it can direct the applicant to proceed with the reservoir. In any event, its decision concerning the reservoir will not be subject to review by this Commission (except to the extent that such a decision might have any collateral safety implications).[63] This being true, the last paragraph of the condition (*i.e.*, the proviso which the Board added to the staff's proposed condition) must be stricken.

The remainder of the condition (*i.e.*, the portion proposed by the staff) requires little comment. Its obvious purpose was to insure that the applicant would actively seek DRBC approval for a supplemental reservoir and, if successful, would proceed promptly to construct and utilize such a reservoir. The applicant has already complied with the requirement that it submit a schedule of the steps it expects to take in that respect; thus, any question as to the validity of that procedural requirement is moot. The substantive portion of the staff-proposed condition—*i.e.*, the directive that the applicant "take those measures necessary to insure the availability of compensatory water storage capacity at the time of initial power operation" if the DRBC so requires—may be superfluous, in that the applicant's economic self-interest would probably lead it to do so even in the absence of the condition. In fact, the applicant itself proposed a similar condition. In any event, its presence may serve some purpose and can do no harm. Because, however, it is uncertain that any DRBC decision will be forthcoming in time for the applicant to take the necessary steps by "the time of initial power operation", this portion of the condition should be amended to make the applicant do so "at the earliest practicable time".

On the basis of the foregoing, it is hereby directed:

1. That the initial decision be deemed *modified* in accordance with the views expressed in this opinion;

2. That the first paragraph of the condition relating to supplemental water storage be *amended* by substituting for the words "time of initial power operation" the words "earliest practicable time";

[63] We do not imply, of course, that there may be any such implications.

3. That the remainder of that condition be *stricken*;
4. That, as modified, the initial decision be *affirmed.*

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-263

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
Dr. Lawrence R. Quarles, Member

In the Matter of

Docket No. 50-201

NUCLEAR FUEL SERVICES, INC., AND NEW YORK STATE ATOMIC AND SPACE DEVELOPMENT AUTHORITY

(West Valley Reprocessing Plant)

Mr. Maurice Axelrad, Washington, D. C., for the applicant, Nuclear Fuel Services, Inc.

Mr. James L. Magavern and Ms. Joan E. Loring, Buffalo, New York, for the petitioner, Erie County, New York.

Mr. Richard L. Black for the NRC staff.

Upon appeal from Licensing Board's denial of Erie County petition for leave to intervene, ASLAB upholds denial, determining, *inter alia*, that petitioner's failure to justify its nontimely filing precludes Board consideration of factors, enumerated in 10 CFR §2.714(a), which might otherwise be taken into account in determining whether to permit intervention.

Memorandum and order affirmed.

Mr. Rosenthal dissents.

RULES OF PRACTICE: APPELLATE PROCEDURE

The Appeal Board need not entertain an issue not raised before the Licensing Board.

RULES OF PRACTICE: NOTICE OF HEARING

Direct written notice of hearing on an application for a facility license need be given only to that municipality (or in lieu thereof that county) within the geographic boundaries of which the facility is located or the activities are to be carried on, and need not be given to all political subdivisions which may be affected by the facility. 10 CFR §2.104(e).

RULES OF PRACTICE: NONTIMELY INTERVENTION PETITIONS

A nontimely petition for intervention can never be granted without the threshold showing of a justifiable excuse for delay in filing.

RULES OF PRACTICE: NONTIMELY INTERVENTION PETITIONS

The specific factors enumerated in 10 CFR §2.714(a) (for determining whether intervention should be permitted despite a delay in filing) can only be given consideration after a Board determination that there exists a justifiable excuse for the nontimely filing.

RULES OF PRACTICE: INTERVENTION PETITION

An intervention petition of a governmental body filed under 10 CFR §2.714(a) is not to be treated differently from an intervention petition of a private person.

DECISION

March 28, 1975

Opinion of Dr. Buck and Dr. Quarles:

Before us is the appeal of Erie County, New York, (hereafter "the County") from the February 26, 1975 memorandum and order of the Licensing Board[1] denying, as untimely, the petition for intervention filed by the County in this proceeding involving two applications pertaining to the West Valley Reprocessing Plant located in the Town of Ashford, Cattaraugus County, New York.[2] The appeal is supported by the NRC staff and opposed by the applicant. We affirm.

[1] LBP-75-4, NRCI 75/2 89.

[2] The first application seeks a construction permit which would enable an expansion of the capacity of the facility. The second application looks to the conversion of the facility's outstanding provisional operating license into a full-term license.

I

A. The relevant facts may be summarized as follows: The customary hearing notice on the West Valley applications was published in the *Federal Register* on March 20, 1974. 39 *F.R.* 10471. It specified an April 19, 1974 deadline for the filing of petitions for leave to intervene. Seven such petitions were filed by that deadline, of which six were eventually granted by the Licensing Board.[3] An eighth petition, filed by the Attorney General of the State of New York after the prescribed deadline (on September 12, 1974), was also granted on a Board determination that the Attorney General had established good cause for the untimeliness.[4]

The Erie County petition was not filed until January 29 of this year—more than nine months late. It sought leave to intervene both as an interested party under 10 CFR 2.714 and as an interested State under 10 CFR 2.715(c), and was supported by the affidavit of the First Assistant County Attorney. The County's interest was said to stem from the fact that (1) the facility is sited near its border; (2) county citizens are employed at the facility; (3) nuclear material being transported to the facility will in most instances be routed through the County; and (4) liquid effluent will be carried from the facility in the Cattaraugus Creek, which runs through the County. Four specific contentions were advanced, all of them asserting that, in one respect or another, facility operation will pose a threat to the health and safety of county citizens (including but not limited to those employed at the facility).

The supporting affidavit acknowledged that the petition was untimely. In justification, the affiant noted simply that the County Legislature had not requested the County Attorney to intervene in the proceeding until October 15, 1974 and that the County Legislature in turn had not "receive[d] requests from residents of the area to act on this matter until after [the April 19, 1974 deadline] had passed". No explanation was offered for the three and one-half month delay in filing the petition after the County Legislature had made its request.

The applicant[5] opposed the granting of the petition on the grounds (1) that, not being a State, the County could not avail itself of the "interested State"

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[3] The seventh timely petitioner was granted leave to make a limited appearance under 10 CFR 2.715(a).

[4] The Attorney General was granted intervention under 10 CFR 2.714. One of the six prior petitioners, the New York State Atomic Energy Council, was admitted to the proceeding under the "interested State" provisions of 10 CFR 2.715(c).

[5] By "applicant", we have reference to Nuclear Fuel Services, Inc. The outstanding provisional operating license was issued as well to the New York State Atomic and Space Development Authority, which is the owner and lessor (to NFS) of the facility site. Although a party to the applications before the Licensing Board, the Authority intends to participate in the evidentiary hearings on a very limited basis.

provisions of 10 CFR 2.715(c); and (2) that the County had not established "good cause" for its tardiness in seeking intervention under 10 CFR 2.714. In addition, the applicant asserted that each of the County's four contentions was "fatally deficient".

The NRC staff agreed with the applicant's position as to the inapplicability of Section 2.715(c) to counties as distinguished from States. It urged the Board, however, to permit intervention under Section 2.714. In the staff's view, the County had alleged a sufficient interest in the proceeding and, further, had put forth at least one acceptable contention. Insofar as the untimeliness of the petition was concerned, the staff expressed the belief that, "[i]n the circumstances of this case [as outlined in the petition] and because of the unique relationship of the facility to the citizens of Erie County", the Board should determine that the requisite showing of "good cause" had been made.

B. In its February 26 ruling, the Board determined that the County did not qualify as an "interested State" within the meaning of Section 2.715(c) and, therefore, its petition had to be treated as seeking intervention as a full party under Section 2.714. The Board found that the County had satisfied the interest and contentions requirements of the latter Section, with the consequence that the grant or denial of the petition hinged entirely upon whether "good cause" had been established for its lateness. Relying upon our observation in *Beaver Valley 2* that the "existence of 'good cause' must be determined on the basis of the circumstances of the particular case,"[6] the Board proceeded to examine what appeared to it to be the relevant circumstances here.

At the outset, the Board took note of the reasons advanced by the County for its delay in filing the petition. It found them to "raise more questions about dilatory conduct" than were answered. Specifically, the Board pointed to the fact that no illumination had been shed upon (1) why the county residents had not requested legislative action at an earlier date;[7] (2) how soon after April 19, 1974 the County Legislature had been asked to act and, if it had been shortly thereafter, why the County Legislature had not proceeded more expeditiously; and (3) why, once the County Legislature had acted, the County Attorney took an additional period of more than three months to file the petition. In this connection, the Board observed that two days after the County Legislature had called upon the County Attorney to seek intervention, a lawyer in his office had attended a prehearing conference in Buffalo and had filed a notice of appearance on behalf of the County.

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[6] *Duquesne Light Co.* (Beaver Valley Power Station, Unit 2), ALAB-208, RAI-74-6 959, 967 n. 7 (June 10, 1974).

[7] In this regard, the Board noted the failure of the petition to identify those residents and suggested the possibility that they were all persons active in one of the organizations which had filed a timely intervention petition.

The Board went on to observe that, commencing in March 1974 when the *Federal Register* notice was published, the proceeding had received extensive publicity in Buffalo, where both the County Legislature and the County Attorney are located. It also called attention to the substantial size of the professional staff of the County Attorney's office.

The totality of these circumstances led the Board to conclude that "no justifiable excuse" had been tendered for the delay. The Board then proceeded to discuss four factors which Section 2.714(a) states are to be referred to in making the "good cause" determination:

> (1) The availability of other means whereby the petitioner's interest will be protected.
>
> (2) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
>
> (3) The extent to which the petitioner's interest will be represented by existing parties.
>
> (4) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.[8]

The Board found (1) that other means were available to protect the County's interest since all four of its contentions were substantially the same as contentions which had been advanced by other party intervenors and already had been admitted to the proceeding as matters in controversy; (2) that the County had not demonstrated "any special expertise or access to evidence" beyond that possessed by the other parties; (3) that the New York Attorney General and the New York State Atomic Energy Council, as well as other intervenors, were already "adequately, aggressively and effectively" representing the interests of Erie County residents; and (4) that, although the County's participation in the proceeding would not broaden the issues, it was very likely that its admission would occasion substantial delay and impose an unreasonable burden upon the applicant insofar as discovery was concerned.

The Board's ultimate conclusion was that:

> Under all the facts and circumstances, it appears to the Board that Erie County has "slept on its rights". The Board concludes that the public interest objectives in prompting public participation in these proceedings would not be advanced by now admitting Erie County as a full party at this late date. There is a complete lack of reasonable justification for its over nine-month delay in filing; it appears that its interests, as asserted in its petition, will be adequately protected by other parties already admitted as

[8] In *Beaver Valley 2*, ALAB-208, *supra*, we reserved judgment on the question as to whether these factors are to be taken into account in circumstances where, at the threshold, a reasonable excuse for the tardiness has not been tendered. We decide the point in this opinion.

intervenors, both in terms of the nature of the interests asserted and the specific subject matters alleged as issues to be tried in the hearing; and no substantial purpose would be served by now granting full party status to the County in terms of "assisting the Commission in the resolution of the issues to be decided". [Footnote omitted].

Accordingly, the County was denied leave to intervene, without prejudice to a request to be allowed to make a limited appearance under 10 CFR 2.715(a).

II

A. The County's first point on its appeal is that its petition should not have been deemed to be late. Our attention is directed to the provision of 10 CFR 2.104(e) which requires that a notice of hearing on an application for a facility license be transmitted, *inter alia*, "to the chief executive of the municipality in which the facility is to be located or the activity is to be conducted or, if the facility is not to be located or the activity conducted within a municipality, to the chief executive of the county". The County insists that, since its County Executive was not furnished with a copy of the notice of hearing here, it follows that the thirty day period for the filing of its intervention petition never commenced to run.

It does not appear that this point was made below. Therefore, it appropriately can be considered to have been waived.[9] We need not, however, rest our disposition of it on that ground alone.

The County acknowledges, as it must, that the facility is not located within its own borders but rather in adjacent Cattaraugus County. Moreover, there seems to be no doubt that all of the reprocessing activities of the facility will be "conducted"—*i.e.*, carried on—within Cattaraugus County. Although those considerations would appear to preclude Erie County's reliance upon Section 2.104(e), we are told that the term "activities" should be read as encompassing not merely "the activities on the physical site of the plant but [additionally] the necessary primary effects of those activities". Erie County then asserts that the impact of this facility upon it and its residents will be at least equal to that upon Cattaraugus County.

We perceive no warrant whatever for giving such an expansive reading to Section 2.104(e). Had the Commission intended the applicability to Erie County of the special notice provision to turn upon whether that County might conceivably be affected in some fashion by the NFS facility (even though located and operated in another county), it doubtless would have said so. What Erie County is asking is that we rewrite Section 2.104(e) and then give the result

[9] *Cf. Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, RAI-73-5 331, 339 (May 18, 1973).

a retroactive application. This is clearly beyond our powers. We take the Rules of Practice as we find them. When called upon to construe an ambiguous rule, we must, of course, endeavor to ascertain the underlying purpose of its framers. In some instances, this may necessitate an inquiry into what policy was intended to be served by the rule. But it scarcely follows that, under the guise of interpretation, we are free to excise the Commission's terms and to replace them with others which might be thought by some to represent wiser policy. The operating room for such surgery is a rulemaking, and not an adjudicatory, proceeding.

We do not wish to be understood as implying that, were we free to do so, we would be disposed to recast Section 2.104(e). To the contrary, adoption of the County's suggestion would impose a wholly unreasonable administrative burden upon the NRC staff. This case provides an ample illustration. As we have seen, it is claimed that the facility will have an impact upon Erie County because of such factors as the employment of county residents; the transportation through the County of nuclear material destined for reprocessing; and the carrying off of liquid effluent in Cattaraugus Creek. It cannot be seriously questioned that innumerable other counties and municipalities, located both close to and at a considerable distance from the facility, might likewise be able to claim a potential effect upon it and its citizens on one or more of these bases. The identification by the staff of all of these political entities prior to the issuance of the notice of hearing would have been a virtual impossibility.[10]

In sum, we hold that Section 2.104(e) requires that special notice be given only to that municipality (or in lieu thereof that county) within the geographical boundaries of which the facility is located or the activities are to be carried on. Accordingly, the Section cannot be invoked to justify Erie County's failure to have filed its intervention petition at an earlier date.[11]

B. The County's second point is that, before determining whether "good cause" had been established for the lateness of its petition, the Licensing Board should have called upon it to respond to the questions which the Board found were left open by the explanation of the tardiness which was offered in the petition itself. It then goes on to furnish us with answers to those questions.

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[10] It should be noted that Section 2.104(e) speaks in terms of giving special notice to "the municipality" or "the county". This use of the singular is a still further indication that the staff was not being called upon in every case to provide such notice to numerous political subdivisions. Of course, more than one special notice will have to issue if the facility site is located or the activities are being carried on in two municipalities or counties. See, *e.g., Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), ALAB-255, NRCI-75/1 3, 5 n. 4 (January 23, 1975).

[11] In the circumstances, we need not decide whether, had it applied to Erie County here, the special notice provision would have had the effect attributed to it by the County; *i.e.*, whether the failure to have provided the County Executive with a copy of the notice of hearing would have tolled, as to Erie County, the running of the period allowed by the notice for the filing of an intervention petition.

The County has obviously misapprehended what was required of it in fulfillment of the obligation to make "a substantial showing of good cause for failure to file on time". 10 CFR 2.714(a). Contrary to its seeming belief, it was not enough for it to start off with the sketchy showing which was tendered in the petition, and then await a direction from the Licensing Board to fill in the gaps. The manifest contemplation of the Rules is that the tardy petitioner tell the full story at the very outset. A petitioner who chooses instead to hold back relevant information invites precisely the result complained of here. Granting that a licensing board has sufficient latitude to provide an opportunity for amplification if it so desires, neither Section 2.714(a) nor sound administrative practice requires it to follow that course.[12]

For these reasons, we think that the Licensing Board did not err in determining the sufficiency of the County's excuse for late filing on the basis of what had been said in the petition. And we are in full accord with the analysis in the Board's opinion which led it to the conclusion that, measured on that basis, the excuse must be regarded as insubstantial.[13]

C. The third and final point made by the County is that the Licensing Board came to the wrong result on its analysis of each of the four specific factors (see p. 212, *supra*) to which Section 2.714(a) directs that "particular reference" be made for some not specifically identified purpose. In our view, this point need not be reached. This is because, as we read Section 2.714(a), the four factors are not to be considered at all where, as here, no good reason has been advanced for the tardiness of the petition.

In *Beaver Valley 2*, ALAB-208, *supra*, we considered this very question: "whether, should the justification (if any) offered for the untimeliness of an intervention petition be found insubstantial, the necessary result is that the petition must be denied." RAI-74-6 at 967. Although we chose not to resolve the question there, we expressed the belief that an affirmative answer was likely required. As we pointed out:

> [N]one of the [four] factors seems to have much relation to whether the petitioner had "good cause" for being late—at least not if that phrase is given its customary meaning. For example, the first identified factor is

[12]The County suggests that it was subjected to unevenhanded treatment because the Board below allowed other petitioners to amend, amplify and revise their intervention petitions. All of those petitions were timely, however, and the permitted supplementation or revision therefore did not relate to the reasons for a belated filing. In our view, this is a sufficient distinction.

[13]Since the Licensing Board did not have before it the elaboration of the cause for the delay which the County has now supplied in connection with its appeal, it would be inappropriate for us to consider that elaboration in passing upon the correctness of the Board's denial of the intervention petition. In any event, the further explanation leaves us unconvinced that the County was justified in waiting as long as it did before taking the first formal step to obtain a participational role in the proceeding.

"[t]he availability of other means whereby the petitioner's interest will be protected". We fail to perceive what bearing such availability or nonavailability might have on the explanation for the failure of the petitioner to file on time.

This consideration leads us to think it quite likely that, while not expressly so stated therein, the intent of Section 2.714(a) is that the enumerated factors are to come into play only in circumstances where there has been a reasonable excuse tendered for the tardiness. In other words, given the established existence of a colorable reason for the lateness of the petition, the Board is then to exercise its discretion to grant or deny the motion for leave to file it out of time by referring to such factors as whether, if the petition is not accepted, the petitioner will nevertheless be able to protect his interests in some other way.

This reading of Section 2.714(a) derives support from the Commission's January 21, 1974 memorandum and order [CLI-74-4, RAI-74-1 15]. There, the Commission denied the AMP-O petition to intervene in *Davis-Besse* on the ground, *inter alia*, that it was "not timely submitted." In doing so, the Commission relied exclusively on the fact that AMP-O had failed to state any "good cause" for its "inordinate delay" in filing the petition and, indeed, had assigned "no reason whatsoever." RAI-74-1 at 16. No mention was made by the Commission of any of the factors enumerated in Section 2.714(a).

RAI-74-6 at 967-68.

This analysis by the *Beaver Valley 2* Board appears to us to be clearly correct and we are unable to see why it should not be now converted into a square holding. To our way of thinking, any other conclusion would read out of Section 2.714(a) the requirement that the untimely petitioner make "a substantial showing of good cause for failure to file on time." In the context of this case, what would be left of that requirement if the four factors could serve as a basis for permitting the County to enter the proceeding nine months late without a colorable excuse for its lack of diligence?

It need be added only that, were it appropriate to consider the four factors here, we would not reach the same ultimate conclusion as has our dissenting colleague. Making all due allowance for the County's governmental status,[14] we share the Licensing Board's opinion that its interest can be sufficiently

[14] We note that contrary to the suggestion of our dissenting colleague, there is no warrant (aside from the particular "interested State" provision of Section 2.715(c) which, as the Licensing Board has pointed out, is here not applicable) in the Rules for treating the intervention petition of a governmental body any differently from that of a private person. Section 2.714(a) applies to "[a]ny person . . . who desires to participate as a party," and "person" is defined by Section 11s of the Atomic Energy Act, 42 U.S.C. 2014(s), as including "any State or any political subdivision of . . . a State."

represented by existing parties. Needless to say any special concern of the County can be advanced by means of a limited appearance.

The February 26, 1975 memorandum and order of the Licensing Board is *affirmed.*[15]

It is so ORDERED

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

Dissenting opinion of Mr. Rosenthal:

My colleagues have decided that, because of its inexcusable delay in filing its intervention petition, Erie County is to be foreclosed from representing (as a party at least) the undisputed interest of its citizens in the hearing and determination of the serious safety and environmental issues presented by the applications at bar. They come to this conclusion despite the fact that the evidentiary proceedings will not commence for at least another six months. With all due respect, I find the majority's result neither compelled by the Commission's Rules of Practice nor sustainable on any other basis. I therefore dissent.

I should make clear at the outset that I have no quarrel with the majority's disposition of the County's first two appellate points. For the reasons my colleagues assign, 10 CFR 2.104(e) is of no assistance to the County here. And they are equally correct respecting the inadequacy of the County's explanation of its tardiness in filing the intervention petition. In this connection, I agree that the County was obliged to present on its own initiative the full story to the Licensing Board, without prompting from that Board. In any event, the elaboration on the cause for the delay which has been furnished by the County to us is, as the majority concludes, unconvincing.

I part company with the majority however, on its disposition of the County's third point. To me, the Licensing Board rightly looked at the four factors which are enumerated in 10 CFR 2.714(a)—despite the majority's

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[5] Subsequent to the preparation of this opinion we received "a response to the notice of appeal" submitted by two of the private intervenors already admitted to the proceeding. Although we are not certain of their standing on this appeal, we have nevertheless considered their assertions in support of the County's position. We find nothing therein to persuade us that the result which we reach is incorrect.

insistence that they are irrelevant here. And I think it crystal clear that, applying those factors to the situation before us, the denial of the intervention petition cannot stand.

A. My colleagues hold that, if a petition for intervention is (as here) unjustifiably late, it must be denied without regard to any other considerations. As they see it, it would make no difference whether the granting of the untimely petition would have no delaying effect upon the commencement of the proceeding. Nor would it be significant whether the denial of intervention would mean that some vital safety or environmental interest possessed by the tardy petitioner might go entirely unrepresented and unprotected (other than by a possible limited appearance). Rather, under the majority's thesis, if the petitioner is unable to convince the Licensing Board (or a reviewing tribunal) that it had good reason for being late, that is the end of the inquiry It is to be excluded from the proceeding no matter the consequences to it or to those upon whose behalf the intervention was sought.

On the face of it, this seems scarcely an attractive proposition. The majority points, however, to our analysis of Section 2.714(a) in *Beaver Valley 2*, ALAB-208, which therefore led us to the conclusion that it was likely that the Section was intended to have precisely the effect now being given to it.

I was a member of the *Beaver Valley 2* Board and fully endorsed that analysis. But I was not prepared then, and I am even less prepared in this case, to use it as has the majority

For one thing, as we took pains to stress in *Beaver Valley 2*, Section 2.714(a) is not free from ambiguity and we might well have misread the Commission's purpose:

> [W]e must acknowledge that Section 2.714(a) can be read as requiring the Licensing Board, in determining whether to allow a belated petition, to take into account [the enumerated] factors—whether or not there has been shown to exist what would be commonly thought to constitute "good cause" for its untimely filing.

RAI-74-6 at 968. This acknowledgment was required. Section 2.714(a) *does not* expressly indicate when and for what purpose the four enumerated factors are to be taken into account. It *does*, however, appear to tie the factors to the "good cause" determination:

> Nontimely filings will not be entertained absent a determination [by the Licensing Board] that the petitioner has made a substantial showing of good cause for failure to file on time, *and with particular reference to* the [enumerated] factors [Emphasis supplied]

It was because of this consideration that the *Beaver Valley 2* Board decided not to affirm the denial of the untimely petition before it solely on the ground that its belatedness had not been justified—the path the majority takes here. Instead, that Board went on

to put the factors on the scale here to ascertain whether, singly or in combination, they tip the balance in favor of allowing the [petitioner] to come into the proceeding despite the lack of a good reason for its failure to file its intervention petition within the prescribed 30-day period.

RAI-74-6 at 968. And it is worthy of note that, in affirming the ultimate conclusion in ALAB-208 that the petition there-involved had been correctly denied as untimely (RAI-74-6 at 953), the Commission did not express disagreement with this approach.

If the course we followed in *Beaver Valley 2* was sensible in the totality of the circumstances there presented (and I believe that it was), it seems even more prudent to adopt it in the circumstances here. The interest which was being asserted by the untimely petitioner in that antitrust proceeding was purely economic in character, arising from its operation of a generating and distribution system in competition with that of one of the applicants. Although economic interests can be important, they certainly are not to be compared with interests having both health and safety and environmental foundations. Assuredly then, there is still greater reason in this case than there was in *Beaver Valley 2* for not shutting the door on the petitioner on the strength solely of one of two possible interpretations of an ambiguous rule of practice. Stated otherwise, before we hold that an intervention petition in a safety/environmental case can *never* be granted if it is unjustifiably late, we should be certain that that is what the Commission intended. The stakes are too high to let the outcome hinge upon an inference drawn from what, at best, is murky language.

In sum, I am unwilling to apply the *Beaver Valley 2* analysis, and thereby sidestep any consideration in situations such as that at bar of the four factors enumerated in Section 2.714(a), in the absence of a clear Commission directive to do so.[1] Accordingly unlike my colleagues, I cannot come to any decision on whether the County's petition was properly denied without taking those factors into account.

B. 1. Were a private individual or group involved, I might well be able to subscribe to the Licensing Board's view that the four factors do not tip the balance in favor of allowing this late intervention. The County stresses, however, its status as a governmental body charged with representing the interest of its citizens. It insists that insufficient recognition was given to this fact in the Board's treatment of the first and third factors. As the majority opinion reflects, regarding the first factor the Board found other means to be available for the protection of the County's interest because contentions substantially identical to those advanced by the County had been put forward by other already admitted intervenors. And, with respect to the third factor (representation of the

[1] The Commission memorandum and order referred to in *Beaver Valley 2* (RAI-74-6 at 968) does not appear to me to constitute such a directive.

petitioner's interest by others), the Board concluded that the interest of Erie County residents was already being adequately represented by the two existing governmental intervenors, the New York Attorney General and the New York State Atomic Energy Council (among others).

Before turning to the County's specific criticism of the Board's reasoning, I note in passing my belief that the consideration which the Board found dispositive on the first factor related instead to the third factor. Taking those two factors together, it seems likely that the first is directed solely to the availability of other means (such as a limited appearance) by which the untimely petitioner can itself protect its own interest.[2] It is the third factor, and it alone, which appears to call for an examination of the extent to which interest of that petitioner would be carried forward in the proceeding by the existing parties. And it is in the context of that inquiry that it might be pertinent whether there was a coincidence of contentions.

The matter is, however, of no practical significance here. Irrespective of the particular factor to which it should have been tied, the question is still whether the Licensing Board properly relied in the circumstances of this case upon the parallel between the County's contentions and those of other existing parties. The County says not. It points out that, as the Licensing Board tacitly acknowledged in its opinion (n. 12) and as the record bears out, contentions substantially identical to its own are to be found only in the petitions of some of the private intervenors. According to the County the "suggestion that a private interest group can protect the interests of a government charged with representing all its people undermines the rights of those unable to become part of such a private group"

Without necessarily endorsing fully that declaration, I share the County's concern respecting the implications of the Licensing Board's apparent equation of the interest which it seeks to protect with that of the private intervenors. To be sure, many private interventions are designed to serve what the sponsoring group or individual deems to be a broad public interest, rather than simply a particularized interest possessed by a relatively small class. This may be true of some, and perhaps all, of the private interventions here. It may further be assumed that each of the intervenors will carry out its voluntary undertaking both diligently and effectively For all of this, however, the fact remains that the County might well view the demands of the public interest in a markedly different light than the private intervenors. Even if voicing the same concerns as the private intervenors on some specific safety or environmental matters, the County might not share their views as to what would be the appropriate public interest response to those concerns. And, in the final analysis, the primary

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Although the Licensing Board indicated it would entertain a request by the County for leave to make a limited appearance, I do not read its opinion to suggest that the County's interest would be satisfactorily protected thereby And see n. 10, *infra.*

responsibility for the identification of the public interest and the vindication of public rights lies in government, rather than in private citizens.[3]

This does not mean, of course, that the County's conception of the dictates of the public interest perforce must be preferred to that of the private intervenors. The question here is not whether the private intervenors should be required to step aside in favor of the County; it is instead whether the presence of those intervenors in the proceeding is a reason for keeping the County out. Given the nature of the County's responsibilities to its citizens, responsibilities not fully shared by any private individual, I think the answer is in the negative.[4]

In these circumstances, the first and third factors can be taken in combination as militating against allowing the County's late intervention only if it can be said that the New York Attorney General and the New York State Atomic Energy Council will adequately represent and protect the public interest which the County seeks to further through its own intervention. The applicant insists that the Board below correctly resolved that issue. Although not claiming that the Attorney General has advanced precisely the same contentions as the County the applicant observes that his intervention petition expresses "closely match[ing]" concerns. And we are pointed to Section 104 of the New York Commerce Law,[5] which imposes upon the Atomic Energy Council the obligation, *inter alia*, to coordinate the participation of all agencies and instrumentalities of the State and its political subdivisions in the regulatory processes of the federal government relating to regulatory programs affecting atomic energy activities in the State. This obligation extends to the coordination

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[3]Under Rule 24(a) of the Federal Rules of Civil Procedure, in passing upon an application for leave to intervene as a matter of right, a federal district court likewise must consider whether "the applicant's interest is adequately represented by existing parties" In *Nuesse* v. *Camp*, 385 F 2d 694 (D.C. Cir. 1967), a state banking commissioner moved to intervene in a suit brought by a state bank to enjoin the Comptroller of the Currency from authorizing a national bank to open a branch in the vicinity of the state bank. Reversing a denial of the motion, the District of Columbia Circuit held, *inter alia*, that "[t]he tactical similarity of the present legal contentions of the state bank and the state commissioner does not assure adequacy of representation or necessarily preclude the Commissioner from the opportunity to appear in his own behalf" The court pointed out that the public interest (sought to be promoted by the Commissioner) in the 'competitive equality' of national and state banks in general" was broader than the bank's interest in protecting "its own commercial integrity" This difference was significant: "interests need not be wholly 'adverse' before there is a basis for concluding that existing representation of a 'different' interest may be inadequate" 385 F 2d at 703.

10 CFR 2.715a provides that a licensing board may require parties to consolidate, *inter alia*, their presentation of evidence and their cross-examination if they "raise substantially the same questions" *and* "have substantially the same interest. I regard this provision as buttressing the conclusion that no significance should be attached to the fact that two parties (or potential parties) have advanced the same contentions unless there is also a reasonably close identity of interest.

[5]McKinney Cumulative Annual Pocket Part, 1974-75.

of the "presentation of views concerning such regulatory programs of all such bodies for consideration by the federal government." *Ibid.*

I can readily agree that the "areas of concern" outlined in the Attorney General's petition are not dissimilar from those identified by the County There is not, however, a like degree of similarity in the specific positions taken. Thus, for example, the County but not the Attorney General contends that the applicant has "inadequately discussed" the safety implications of the transportation of nuclear materials to the facility site. In this connection, the relief which the Attorney General seeks is the withholding of a construction permit to expand the facility until the matters raised by his petition are "resolved to *his* satisfaction" (emphasis supplied). Presumably then, if all of those matters were so resolved, he would not press any objection to the granting of the permit irrespective of any additional concerns which the County might have.

Since it sought and obtained intervention under the "interested State" provisions of 10 CFR 2.715(c), it was not necessary for the Atomic Energy Council to take a position on any of the issues which might come before the Board. And in fact the Council did not do so in its petition, confining itself to the listing of certain matters which it would endeavor to insure would receive "full Commission consideration."[6] Thus, the applicant is left with its reliance upon the "coordination" role given the Council by New York law Without attempting to ascertain the outer perimeters of that role, I note that neither the Attorney General nor the Council itself has been heard to assert that the statute has the effect of foreclosing a political subdivision of the State from representing the interest of its own citizens. Further, I see nothing in the mandate given to the Council which would support, let alone compel, the conclusion reached by the Licensing Board that the Council would "adequately aggressively and effectively" represent that interest. At this point, given the thrust of the Council's petition, it is at most speculative.

2. Whether and to what extent the County's participation "may reasonably be expected to assist in developing a sound record" (the second factor) is difficult to assess. For its part, the Licensing Board thought it enough that the County had not claimed or demonstrated any special expertise or access to evidence not possessed by already admitted parties. On the other hand, the County reminds us of the averment in its petition that it has "the financial resources and technical expertise to be an active participant" and points to the air and water quality monitoring activities conducted by its Health Department and its Department of Environmental Quality We are also told of a commitment of $5,000 in County monies to fund "very preliminary specialized technical studies of selected aspects of the application."

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[6] The transportation issue, as well as other issues raised by the County were not among those matters.

It might turn out that none of the resources available to the County would provide relevant information beyond that which will be supplied by other parties. At this juncture, however, there is no way in which a reasonable prediction can be made. Moreover, it is rank conjecture whether, through some other means such as cross-examination, the County might further the "develop-[ment of] a sound record." This being so, it seems to me that the second factor should not influence, one way or another, the ultimate decision on the County's late petition.

3. This brings me to the fourth factor—the extent to which the County's participation might broaden the issues or delay the proceeding. In my judgment, this is a crucial factor here. If, as the Licensing Board concluded, an intervention by the County at this late date would very likely occasion substantial delay [7] it necessarily follows that the petition was rightly denied. The County's status as guardian of its local citizens' interest would be unduly exalted were we to permit its lack of diligence in asserting that interest to retard the scheduling of the proceeding—to the detriment of others at least equally concerned with its outcome.

The Licensing Board's opinion reflects that, as of its rendition, no date as yet had been established for the commencement of evidentiary hearings. Its "best estimate" derived from "the pace of the prehearing procedures and discovery process" which have been underway since last July is that those hearings may start "early" next fall. The staff thinks that the hearings will not begin until October at the earliest.

I therefore see no reason why the County's intervention at this time would inevitably necessitate a delay in the progress of the case. At least six months would be available to the County for its trial preparation. To be sure, this may not in reality be as ample a period as it might seem at first blush. As the Licensing Board emphasized, extensive discovery has already taken place and, in light of the issues to be resolved by the Board, the parties undoubtedly will find it necessary to analyze "voluminous documentation" of a "highly technical" nature. But, at least if it moved forward with a much greater sense of urgency than has been exhibited up to this point, there is no reason to assume that the County—with the resources at its disposal—could not be ready for trial by this fall.

In all events, if now permitted to intervene, the County would be in no position to seek a hearing postponement on the basis of an asserted need for additional time to get ready for trial. Being unjustifiably late in entering the starting gate, any disadvantage which it might suffer in terms of the opportunity for trial preparation would be entirely of its own making. This being so, it would not be able to advance the procedural due process claim which, in quite a

[7] There is no question raised respecting a possible broadening of the issues were the County granted intervention.

different context, prevailed in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-212, RAI-74-6 986 (June 18, 1974).

Apart from the delay factor, the Licensing Board believed that allowing the County to enter the proceeding at this stage would impose an unfair discovery burden upon the applicant. On the appeal, the County maintains that this consideration is irrelevant and even goes so far as to suggest that the mention of it brought the Board's impartiality into question.

This suggestion is bootless. An adjudicatory tribunal has not only the right but the manifest duty to insure that *all* parties to the proceeding before it receive fair treatment and are not subjected to an unreasonable burden because of the derelictions of others. Far from "act[ing] as an advocate for the applicant" (as the County would have it), in raising the discovery matter here the Licensing Board was properly discharging one of its most important functions.

Although agreeing with the Licensing Board that a potential for an undue discovery burden would arise, I think that the Board is endowed with adequate powers to control it. Specifically the Board need not countenance a demand by the County that the applicant make available anew the documents to which access has been already furnished the other intervenors (either singly or as a group). To the contrary the County could be called upon to seek that information from those who have previously been furnished it.[8] If this worked a hardship upon the County it would have only itself to blame.

C. There is a natural inclination to look with disfavor upon any petitioner who arrives on the scene nine months late, particularly if he does not bring with him a good explanation for his tardiness. Nonetheless, the foregoing analysis leads me ineluctably to the conclusion that the County should have been permitted to intervene, with an explicit admonition respecting its obligation to complete its trial preparation by whatever date the Licensing Board might ultimately fix for the commencement of the evidentiary hearing.

It seems to me that, on the record before us, the contrary result arrived at below—which now has the approval of a majority of this Board—can be justified only on the theory that the enforcement of time limits invariably takes precedence over all other considerations.[9] I do not accept this proposition. Obviously the observance of time limits is a matter of significance—the administrative process likely would break down entirely if they were widely

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[8] Presumably it could count on the cooperation of at least the New York Attorney General and the New York State Atomic Energy Council.

[9] This was not true in *Beaver Valley 2*, ALAB-208, *supra*. There, the denial of the untimely petition both could and did rest on another consideration: that the petitioner could obtain the same relief in other pending proceedings to which it was already a party See RAI-74-6 at 969.

ignored. And it is equally manifest that governmental bodies neither have been nor should be exempted from their operation. But it hardly follows that prescribed time periods are sacred cows, the sanctity of which must be preserved at any cost. And here the cost, at least to the citizens of Erie County is potentially high indeed. Those citizens are being deprived of representation by their own local government in a proceeding the outcome of which may well have a bearing upon their health and welfare.[10]

I *dissent.*[11]

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[0] I draw small comfort from the fact that the County has been invited to seek leave to make a limited appearance. The limited appearee has none of the significant rights of a party (*e.g.*, he is not entitled to present evidence, cross-examine witnesses, submit proposed findings of fact and conclusions of law, or take an appeal from an adverse decision).

At the conclusion of the majority opinion, there is a footnote reference to a document just filed by two organizations which already have been permitted to intervene. Although those organizations urge the same result that I advocate, I cannot agree with their reasoning. Among other things, it is not relevant whether, as they assert, a portion of the facility site lies in Erie County. The question for Section 2.104(e) purposes is where the facility itself is located; in its brief to us, the County expressly concedes (at p. 1) that the facility is not located within its borders. Secondly I fail to understand the attempted reliance on the purported fact that the notice of hearing was published locally on March 25, 1974 rather than (as is said to have been required) six days earlier. The petition was not filed, after all, until January 1975 and it affirmatively appears that the County's representatives. were aware of the proceeding no later than last summer. Finally the suggestion that the County Attorney may have been too busy to move more expeditiously is neither endorsed by the County itself nor very impressive.

In my judgment, there just is no basis upon which, on the facts before us, the County's extreme delay in taking any formal action looking toward possible intervention can be satisfactorily explained. Thus, if I had thought that a good excuse for the tardiness was an absolute condition precedent to a grant of the petition, I would have been constrained to join the majority.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-6

ATOMIC SAFETY AND LICENSING BOARD

Michael L. Glaser, Chairman
Emmeth A. Luebke, Member
Lester Kornblith, Jr., Member

In the Matter of
CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)

Construction Permit Nos. 81 and 82
March 5, 1975

Upon intervenor's petition to reopen the record in show cause proceeding and/or for reconsideration of September 25, 1974 initial decision (finding licensee in compliance with quality assurance regulations and holding that construction permits should not be suspended, modified or revoked) Licensing Board finds (1) that there is nothing in the complaint filed in United States District Court by the licensee against its architect-engineer and certain other parties (alleging breach of contract and negligence in connection with construc tion of Palisades Plant) which challenges licensee's or architect-engineer's quality assurance program at the Midland facility and (2) that matters presented in such complaint, taken in light most favorable to petitioners, would not affect the initial decision.

Petition to reopen the record and/or for reconsideration of initial decision denied.

RULES OF PRACTICE. PETITION TO REOPEN THE RECORD

Considerations applicable to reopening of evidentiary record after the conclusion of evidentiary hearing include the timeliness of the motion and the significance or gravity of the issues involved. See *Vermont Yankee,* ALAB-138, RAI-73-7 520-34.

RULES OF PRACTICE: PETITION TO REOPEN THE RECORD

A petition to reopen the record must (1) be supported by newly-discovered evidence, (2) show that the facts relied on by petitioning party could not, with due diligence, have been known or discovered at the time of evidentiary hearing, and (3) show that the new evidence, if true, would affect the decision involved.

COMMISSION PROCEEDINGS: DUTY OF COUNSEL

Counsel's failure to appear at oral argument cannot be condoned, although leave to file written comments on oral argument might thereafter be granted where good cause is shown. Counsel for a party to a Commission proceeding has responsibility to comply with every procedural and substantive matter involving such proceeding.

MEMORANDUM AND ORDER

By a petition filed September 30, 1974, the Saginaw Intervenors (Saginaw) have invited this Board to reopen the record and/or reconsider its Initial Decision, issued September 25, 1974,[1] which concluded in the above-captioned proceeding (a) that Consumers Power Company (Consumers) was implementing its quality assurance program in compliance with the regulations of the Nuclear Regulatory Commission; (b) that there is reasonable assurance that such implementation will continue throughout Consumers' construction of the Midland Plant, Units 1 and 2; and (c) that Construction Permit Nos. 81 and 82 issued to Consumers for the Midland Plant, Units 1 and 2, should not be suspended, modified, or revoked.

After very careful consideration of Saginaw's petition,[2] we decline the invitation for the reasons which appear hereinafter.

I. THE PETITION

On September 30, 1974, Saginaw filed a "Petition to Reopen the Record and/or for Reconsideration of Initial Decision" in this proceeding. The basis for Saginaw's petition was a Complaint filed by Consumers on August 28, 1974, against five defendants, including Bechtel Corporation and Bechtel Company in the United States District Court for the Western District of Michigan, Southern Division. The Complaint alleges breach of contract and negligence against the defendants in connection with the construction of the Palisades Plant, a nuclear plant located in Covert Township, Van Buren County Michigan. Bechtel Corporation and Bechtel Company are the architect engineers for the Palisades Plant, as well as for the Midland Plant, Units 1 and 2. Saginaw contends that the

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RAI-74-9, 584.

Also before us are various other pleadings and letters from the parties supplementing the original petition and responses thereto. These include Consumers' notification to us of a cutback in construction activities and changes in its quality assurance program at Midland, as well as corresponding changes by Bechtel. We have also considered these matters in weighing Saginaw's petition.

Complaint challenges the qualifications of Bechtel to provide quality control and quality assurance to Consumers in the construction of the Midland Units, a matter relevant and material to this Board's determination that there is reasonable assurance Consumers will implement its quality assurance program throughout the construction process.

Consumers, Bechtel, and the Staff oppose Saginaw's petition on various grounds. Each relied in part on the decisions of the Appeal Board in *Vermont Yankee Nuclear Power Corp.*, ALAB-138, RAI-73-7 pp. 520-534 (July 31 1973), which sets forth guidelines applicable to reopening of an evidentiary record after conclusion of an evidentiary hearing. In *Vermont Yankee*, the Appeal Board indicated two factors which require consideration in passing upon a petition to reopen an evidentiary record.

> (1) The timeliness of the motion, i.e. whether the issues sought to be presented could have been raised at an earlier stage, such as prior to the close of the hearing; and (2) the significance or gravity of those issues. A board need not grant a motion to reopen which raises matters which, even though timely presented, are not of 'major significance to plant safety' (ALAB-124, RAI-73-5 at 365). By the same token, however a matter may be of such gravity that the motion to reopen should be granted notwithstanding that it might have been presented earlier (ALAB-124, RAI-73-5 at 365, fn. 10; see also ALAB-126, RAI-73-6 at 395).

Consumers argues that application of these factors to Saginaw's petition readily establishes no basis to reopen the proceeding. First, Consumers states that although the Complaint was not filed until August 28, 1974, the facts on which the litigation rests were available to all parties in this proceeding long before August 28, 1974. Thus, Consumers essentially argues that Saginaw's petition is not timely filed. Moreover, Consumers asserts that the issues raised by Saginaw's petition deal with occurrences at the Palisades Plant, and are not of major significance to plant safety Thus, they are of marginal relevance and materiality to this proceeding. Consumers points out that the Complaint includes only allegations, and those concern activities which took place prior to the effectiveness of Appendix B to 10 CFR Part 50, the basic quality assurance regulation with which Consumers is required to comply throughout the construction of the Midland Plant. Finally Consumers claims that a reopening of the record in this proceeding would result in this Board trying the issue of Bechtel's liability to Consumers for alleged breach of contract, and negligence with respect to Palisades, which is not a triable issue of fact herein.

The Staff asserts similar arguments, which may be summarized as stating that nothing in the Complaint alleges or proves that Consumers is not making adequate repairs at Midland, or that Consumers is allowing the facility to be constructed in an unsafe manner.

Bechtel also opposes Saginaw's petition on substantially the same grounds, but in addition argues that the petition is procedurally defective for failure to

include affidavits or other evidence supporting the facts relied upon as required by 10 CFR §2.730(b). Bechtel also suggests that this Board no longer has jurisdiction over this proceeding and thus has no authority to rule on Saginaw's petition.

II. ORAL ARGUMENT

Because of the importance of the matters raised by Saginaw's petition, we scheduled oral argument on November 18, 1974. We directed the parties to address the questions of relevancy and materiality of the complaint to the issues in this proceeding, and to inform the Board what additional evidence would be presented under what issues if the proceeding were reopened.

The Board held oral argument on the scheduled date. Counsel for Saginaw however, failed to appear. The Board attempted to contact counsel, and delayed commencement of oral argument. After being unable to contact counsel, the Board proceeded with oral argument. Consumers, Bechtel, and the Staff reiterated essentially the same arguments each offered in opposition pleadings to Saginaw's petition. On November 19 1974, counsel for Saginaw contacted the Board and apologized for being absent from oral argument. Counsel advised the Board that he had been ill, and did not reach his office until noon on the date scheduled for oral argument. Counsel stated that his office had failed to accurately docket the date for oral argument which actually led to his absence from oral argument. Counsel stated his absence could be termed excusable neglect. In view of these circumstances, counsel for Saginaw requested leave to file written comments on oral argument in order that Saginaw would not be precluded from presenting its position to the Board because of counsel's failure to appear at oral argument. This Board instructed Saginaw to file such comments accompanied by a motion indicating good cause for their acceptance. We also granted leave to Consumers, Bechtel, and the Staff to file written answers to any such comments which Saginaw might file, and indicated that were we to grant Saginaw's motion, we would give consideration to the other parties' written answers to Saginaw's written comments.

On December 2, 1974, Saginaw filed a motion for leave to file written comments on oral argument, as well as its comments. In the motion, Saginaw's counsel set forth the same reasons he had previously given for his failure to appear. Consumers, Bechtel, and the Staff filed responses to Saginaw's comments.

The Board has carefully considered Saginaw's motion for leave to file written comments on oral argument. We grant the motion and accept the comments which accompanied the motion, as well as the responses thereto filed by the other parties. However, while we believe that the reasons given by counsel for

Saginaw justify our finding good cause for a grant of the motion for leave to file written comments, we cannot condone counsel's failure to appear at oral argument. Such failure is, in our view an extremely serious matter. Counsel for a party to a proceeding before this Commission has the responsibility to comply with every procedural and substantive matter involving such proceeding. Counsel for Saginaw has failed to carry his responsibility

III. THE PETITION FAILS TO PRESENT MATTERS WHICH WARRANT REOPENING OF THE RECORD AND/OR RECONSIDERATION OF INITIAL DECISION

A petition to reopen the record must, in our view be supported by newly-discovered evidence, must show that the facts relied on by petitioning party could not, with due diligence, have been known or been discovered at the time of evidentiary hearing, and must show that the new evidence, if true, would affect the decision involved. Assessed against these criteria, we find that Saginaw's petition must be denied. Assuming *arguendo* that Saginaw's petition meets the first two of these criteria, the matters presented in the petition, namely allegations of negligence and breach of contract on the part of Bechtel at Consumers' Palisades Plant would not, whether or not true, affect our decision. There is nothing in the Complaint which challenges Consumers' or Bechtel's quality assurance program at the Midland facility The Complaint challenges Bechtel's conduct in complying with contractual requirements and in performing certain obligations at the Palisades facility which had been constructed much earlier and under different Commission quality assurance regulations. The ensuing litigation over the Palisades Plant between Consumers and Bechtel simply does not encompass the quality assurance matters which were before us in the evidentiary record in this proceeding. Even if Consumers were to establish Bechtel's liability and recover damages, the result would not affect our conclusion that there is reasonable assurance that Consumers will implement its quality assurance programs throughout the construction of the Midland Plant. While it is true that the Consumers-Bechtel relationship is an ongoing relationship, which is certainly pertinent to any evaluation of an applicant's quality assurance program, the record before us convincingly established that this relationship, together with the Commission's inspection program, can be relied upon to provide reasonable assurance that Consumers will implement its quality assurance program in conformance with the Commission's requirements throughout the construction of the Midland Plant.

We therefore conclude that Saginaw's petition fails to present reasons which warrant a reopening of the record, or reconsideration of our Initial Decision.

It is so ORDERED.

ATOMIC SAFETY AND
LICENSING BOARD

Lester Kornblith, Jr., Member

Emmeth A. Luebke, Member

Michael L. Glaser, Chairman

Dated at Bethesda, Maryland,
this 5th day of March 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-7

ATOMIC SAFETY AND LICENSING BOARD

Elizabeth S. Bowers, Chairman
Dr. Richard F Cole, Member
Glenn O. Bright, Member

In the Matter of

POTOMAC ELECTRIC POWER COMPANY

(Douglas Point Nuclear Generating Station, Units 1 and 2)

Docket Nos. 50-448
50-449

March 10, 1975

Upon applicant's motion to proceed with hearings on limited issues, in circumstances where the in-service date of its proposed facility has been postponed for five years, Licensing Board determines that such hearings could not result in meaningful findings of fact and hence should be deferred.

Determination referred to Appeal Board.

CONSTRUCTION PERMIT HEARINGS: EFFECT OF DEFERRAL OF DATE OF PLANNED SERVICE ON HEARING SCHEDULE

Within practical limits, a construction permit hearing should be conducted in as close proximity as possible to the anticipated commencement of construction of the facility Intervenors in this proceeding contend that they do not have resources to relitigate issues in order for the record to contain updated information.

CONSTRUCTION PERMIT HEARINGS: EFFECT OF DEFERRAL OF DATE OF PLANNED SERVICE ON HEARING SCHEDULE

Regulations referring to separate hearings on site suitability and other sub-issues were promulgated on the assumption that the applicant was prepared to furnish reliable, probative evidence on need for power and financial ability to construct the facility and do not apply in a situation where such proof is not possible for several years.

CONSTRUCTION PERMIT HEARINGS: HEALTH AND SAFETY ISSUES

Proper consideration of health and safety issues requires current information, since history indicates a reasonable possibility of changing standards within a period of several years.

CONSTRUCTION PERMIT HEARINGS. NEPA COST-BENEFIT BALANCE

In order to conduct a valid NEPA cost-benefit balance, a Licensing Board must have available to it current information in the environmental area and evidence supporting the need for power.

ORDER REFERRING DECISION TO APPEAL BOARD CONCERNING LICENSING BOARD'S RESPONSIBILITY TO PROCEED WHEN THE ON-SERVICE DATE HAS BEEN POSTPONED FIVE YEARS

Pursuant to 10 CFR §§2.718(i) and 2.785(b), the Atomic Safety and Licensing Board in its discretion certifies the question of the Board's responsibility to proceed or not to proceed with evidentiary hearings and the issuance of partial initial decisions on such issues as site suitability and facility design after the Staff's Final Environmental Report is issued on March 31 1975, and the Supplement to the Safety Evaluation is released July 7 1975 The Applicant in two separate announcements postponed the on-service date for Unit 1 from 1980 to 1985 and for Unit 2 from 1982 to 1987 For reasons which will be more fully explained, it is the Board's position that it should not grant the Applicant's motion to proceed with fragmented hearings and issuance of findings of fact on limited issues.

This case was noticed for hearing by the Commission on August 31 1973. It followed a normal course of prehearing, admissions of petitioners as parties,* and extensive discovery in the spring of 1974. The Staff's Draft Environmental Statement was released in May 1974, and the Final Statement was originally scheduled for August 16, 1974. The Safety Evaluation was originally scheduled for August 2, 1974, and the Supplement was originally scheduled for December 13 1974.

On August 2, 1974, the Applicant announced a two-year postponement for Douglas Point so that Unit 1 was rescheduled for operation from 1980 to 1982,

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*The State of Maryland and the Commonwealth of Virginia are admitted under 10 CFR §2.715(c). The other parties are as follows: Environmental Defense Fund/Sierra Club/Prince George's Environmental Coalition; Chesapeake Bay Foundation/Citizens' Council for a Clean Potomac; Edward J. Wojciechowicz; and Commandant of the U. S. Marine Corps Air Station, Quantico, Virginia, on behalf of the Commandant of the Marine Corps.

and Unit 2 from 1982 to 1984. The Board scheduled the second special prehearing conference on September 25, 1974, to consider how the postponement might affect the proceeding. At the prehearing, the Staff indicated that the Final Environmental Statement was scheduled to be issued on November 22, 1974, and the Supplement to the Safety Evaluation on March 10, 1975 [1]

The Applicant stated that it anticipated commencement of construction at the site in mid-fall of 1976.[2] Intervenor Edward J Wojciechowicz stated that this postponement would permit additional time for the consideration of other sources of power, e.g., solar or geothermal, and that it was contrary to NEPA and the Council on Environmental Quality Guidelines to proceed with hearings which would be more than a year prior to actual construction.[3] The Applicant stated that it would be prepared in the spring of 1975 in the evidentiary hearings to support the need for power and its financial ability to complete the plant.[4] It also stressed that ongoing engineering and procurement commitments were substantial.[5] The Staff, in response to Mr. Wojciechowicz's objection, opined that technical advances regarding alternatives, if not already established, probably wouldn't be sufficiently established within the next year or two to warrant consideration as a viable plant alternative.[6]

The Board issued its Order on October 7 1974, adopting the Staff proposed schedule of January 21, 1975 for the environmental hearing and April 10, 1975 for the health and safety (Attachment A). [All attachments (A through L) are omitted from this publication.]

On October 21 1974, Intervenor Edward J Wojciechowicz filed a motion requesting the Board to certify this matter to the Commission. (Attachment B). It was opposed by the Applicant and Staff. (Attachments C and D). The Board denied the motion by its Order of November 20, 1974. (Attachment E).

On November 21 1974, the Applicant announced a second postponement of three additional years for the on-service dates of the facility Unit 1 is now scheduled for 1985 and Unit 2 dated for 1987 On December 11 1974, the Applicant filed a motion requesting the Board to proceed with all issues except need for power and financial capability (Attachment F). The State of Maryland responded in support of the motion and further stated in the hearing to be conducted by the Maryland Public Service Commission it would also take testimony on the need for power. (Attachment G). Intervenors Chesapeake Bay Foundation/Citizens' Council for a Clean Potomac and Edward J. Wojciechowicz objected to the motion primarily on the bases that it was not possible to

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[1] Tr. p. 141.
[2] Tr. p. 177
[3] Tr. p. 150.
[4] Tr. p. 174.
[5] Tr. pp. 157 164.
[6] Tr. p. 176.

conduct a valid NEPA review so far in advance of the actual construction of the plant and that their financial and technical resources would not permit meaningful participation in a series of hearings necessary to update information on their issues. The Staff supported the motion but stated that a cost-benefit balance could not be made that did not include the need for power. The Staff characterized the matter as a "first impression" and urged a cautious approach by the Board and deferred its position on partial initial decisions until "the question is, in fact, at hand." (Attachment J). It is not surprising that Environmental Defense Fund, et al., did not respond since their contentions all related to need for power. By Order of January 24, 1975, the Board scheduled a third prehearing conference on February 24, 1975 for further discussion of this matter (Attachment K).

The Applicant's opening statement at the prehearing conference consisted initially of a management statement by Mr. Ellis Cox, Executive Vice President, in which he recited the various considerations which resulted in the final determination to further postpone the on-service dates for Douglas Point.[7] Mr Paul Dragoumis, Vice President of Nuclear Engineering and Construction for PEPCO, followed with a statement that its major contracts are not being terminated, but being redistributed on the new schedule. He stated that PEPCO has commitments for Douglas Point in excess of $300 million today He said there is more than $20 million invested in engineering and design. He stated that the Company is in the process of filing substantial additional information requested by the Staff and that the Company is establishing a procedure to update safety related design features prior to the commencement of construc tion in 1979 [8]

Counsel for the Applicant distributed a document dated February 24, 1975 which listed all contentions of the various intervenors allowed by the Board. He then proceeded to identify and further discuss those issues on which the Applicant wanted to proceed, and at that time he identified additional contentions for deferral. (Attachment L). Applicant's original motion requested deferral of only the need for power and financial capability issues. Cost-benefit considerations and alternatives were added to the deferral category leaving only certain environmental contentions and "those which relate to the design of the plant and to the suitability of its site." He stated that engineering would be resumed on a large scale early in 1977 [9]

Counsel for the State of Maryland responded by informing the Board of the scope of the responsibility of various departments and commissions involved and stated that Maryland Public Service Commission intended to proceed in May 1975 with its hearings on site evaluation—recognizing that the record may need

[7] Tr. pp. 210-214.
[8] Tr. pp. 215-217 292-297
[9] Tr. pp. 218-226.

to be reopened if there are future developments which necessitated further hearings. He also stated that need for power was one of the principal issues since they have a responsibility to see that consumers of the State have ample power [10]

Counsel for Environmental Defense Fund, et al., stated that they agreed all of their issues should be deferred since they all pertained to need for power. He also spoke briefly about the rapidly changing energy situation.[11]

Counsel for Chesapeake Bay Foundation/Citizens Council for a Clean Potomac stated their opposition in going forward with any issues. He mentioned their limited resources and that repetitive hearings on environmental matters would not only overburden their resources but early hearings without the cost-benefit balance would not be complying with NEPA. He suggested all hearings be deferred until 1980.[12] Counsel introduced a Foundation biologist, Ms. Nancy Dimsdale, who discussed various environmental factors which she believed could change in the Douglas Point area within the next few years.[13] Counsel repeated his concern about the Foundation's limited resources in litigating the same issues more than one time.[14]

Counsel for Edward J Wojciechowicz stated that he briefly wanted to reiterate the position stated in their response to the motion. He stated that if the Board proceeds as the Applicant proposes, there cannot be a proper interrelationship between the issues for an eventual valid cost-benefit analysis. His position is that the Board is being asked to proceed on hypothetical questions rather than the real issues. He stated their limited resources would not permit repetitive updating hearings of their issues. He mentioned also that large sums of money are now being expended for further development in all energy fields, which in his opinion may develop viable energy sources.[15]

Counsel for the Marine Corps suggested that the hearing on their issues which concern the effect of the cooling towers and the cooling tower plumes on their aircraft in the area be held as soon as possible and therefore supported the Applicant's Motion.[16]

Counsel for the NRC Regulatory Staff supported the Applicant's motion that hearings could proceed on some issues promptly but also referred to the La Salle decision, ALAB-153 which required that the information for a cost-benefit analysis must not be "stale" The Staff stated that it was prepared to relitigate those issues where significant changes occur. The Staff suggested

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[0]Tr. pp. 227-235.
Tr. pp. 235-237
[2]Tr. pp. 238-241.
[3]Tr. pp. 302-303.
[4]Tr. pp. 304-305.
[5]Tr. pp. 244-249.
[6]Tr. pp. 249-252 (p. 252, "U. S. Supreme Court" should be "U. S. Marine Corps.")

that 10 CFR §2.761a and Appendix A section 1c provide for hearings on site suitability and other separate issues. The Staff took a position that it is possible to dispose of numerous issues before the Board must determine a cost-benefit balance. The Board questioned the Staff concerning the comments received in response to the Draft Environmental Statement issued in May 1974, since the Comments are dated in June and July—therefore prior to the five-year postponement. The Staff responded that a mere change in date would not cause them to recirculate but they would recirculate if there were such changes as need for power or possible alternatives. In response to a Board question, the Staff stated that the need for power and the cost-benefit analysis in the Final Environmental Statement would be based on the information they had at the time of its release in April 1975 The Staff also stated that the Board could conduct hearings on specific issues, e.g., hydrology or geology and could issue findings of fact. Other examples given by the Staff suitable for early hearings are the effects of chemical wastes on the fish in the area and the biological effects on the flora and fauna. The Staff also took the position that it is not likely there will be significant environmental changes in the next five years except for a possibility that population density might change. The Staff stated several times that it was prepared to update all information. The Staff acknowledged it would be an inconvenience for intervenors to litigate repeatedly the same issues but did not feel they would be prejudiced if the issues remained the same. The Staff responded to a Board question concerning possible alternatives in the future by stating a finding could be made now on such issues subject to reconsideration at a later date.[17]

Counsel for the Applicant reiterated the desirability of settling as many issues as early as possible. In response to a Board question, he stated he thought the deferred matters could come to a hearing in late 1977 or early 1978. He also mentioned the Maryland program on site selection which may approve sites as much as ten years prior to the actual use.[18]

The Board's position is that it should not proceed with fragmented hearings on the basis that they cannot result in any really meaningful findings of fact at this early stage. The Board anticipates an absolute need for current information not only in the environmental area for a valid NEPA cost benefit balance but also in the area of health and safety where history indicates a reasonable possibility of changing standards within a period of several years. The Board believes that, within practical limits, the hearing process should be conducted as proximate as possible to Applicant's requirement for a limited work authorization and/or construction permit. It is our belief that the regulations referring to separate hearings on site suitability and other subissues were promulgated on the

[7] Tr. pp. 253-280, 309-310.
[8] Tr. pp. 281-298.

assumption that the Applicant was prepared to furnish reliable, probative evidence on need for power and financial ability to construct the facility This situation does not lend itself to that premise.

In summary the Board is very aware of its obligations to all parties and desires to proceed with full consideration of the interests of the Applicant, Intervenors, and Staff. We are unable to accept the position that piecemeal hearings with interim findings of fact approximately four (4) years prior to the current estimated time of the commencement of construction will be of practical value to any party and could perhaps curtail meaningful participation by several of the parties because of their limited resources.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Elizabeth S. Bowers, Chairman

Issued at Bethesda, Maryland
this 10th day of March, 1975.

(Attachments A through L are omitted from this publication, but they are available at the Commission's Public Document Room, Washington, D C.)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-8

ATOMIC SAFETY AND LICENSING BOARD

Robert M. Lazo, Chairman
Walter H. Jordan, Member
Richard F Cole, Member

In the Matter of

NORTHERN STATES POWER COMPANY

(Monticello Nuclear Generating Plant, Unit 1)

Docket No. 50-263
(OL Amendment)

March 11 1975

Upon petition to intervene and timely request for public hearing on proposed changes to the technical specifications of the Monticello plant's provisional operating license, Licensing Board finds that petitioner has satisfied the requisite interest and contention requirements (see 10 CFR §2.714), and concludes that a hearing on the proposed changes is warranted and that petitioner should be admitted as a party

Petition to intervene and request for public hearing granted.

MEMORANDUM AND ORDER

On July 22, 1974, the Atomic Energy Commission[1] published a Notice of Proposed Issuance of Amendment to Provisional Operating License with respect to Northern States Power Company's (licensee's) Monticello Nuclear Generating Plant (the facility), 39 *Fed. Reg.* 26661. The proposed amendment relates to operation of the facility utilizing a Prompt Relief Trip (PRT) system to minimize fuel thermal effects which could result from certain abnormal operational transients. The notice provided that any person whose interest may be affected by this proceeding may file a petition for leave to intervene in accordance with the Commission's Rules of Practice in 10 CFR Part 2.

The Nuclear Regulatory Commission is the successor organization to the Atomic Energy Commission as provided by legislation enacted by the Congress in Public Law 93-438 on October 11, 1974.

On August 20, 1974, the Minnesota Pollution Control Agency (MPCA), an agency of the State of Minnesota, filed a timely request that the Commission hold a public hearing on the proposed changes to the Technical Specifications of the Monticello plant's provisional operating license and petitioned for leave to intervene as a party in such a proceeding.

In its response, Northern States Power Company the licensee, has stated that it does not object to MPCA's request for hearing. Further, the Commission's Regulatory Staff has stated its belief that the petition meets the requirements of 10 CFR §2.714 because Petitioner has demonstrated the requisite interest and the two contentions specified in the Petition have been set forth with reasonable specificity and with some basis assigned for them.

Upon consideration of the aforementioned filings, this Board which has been designated to rule on petitions for leave to intervene, concludes that a hearing is warranted and that Petitioner, Minnesota Pollution Control Agency should be admitted as a party MPCA's Petition provides sufficient assertion of its interest and in the two contentions set forth identifies the specific aspect of the subject matter of the proceeding as to which it wishes to intervene. Therefore, the Board hereby grants the petition for leave to intervene filed by MPCA. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2) ALAB-107 RA1 73-3 188 at 191 (March 29 1973). *See* also: *Virginia Electric and Power Company* (North Anna Power Station, Units 1 and 2) ALAB-146, RAI-73-9 631 at 633 (September 14, 1973). However, it remains for Petitioner to establish to the satisfaction of the Hearing Board which is being established, that genuine issues actually exist. If that Board is not so satisfied, it may summarily dispose of the contentions on the basis of the pleadings, 10 CFR §2.749

A notice of hearing implementing this decision is appended to this Memorandum and Order as Attachment A. (Attachment A is omitted from this publication.)

Dr. Walter H. Jordan and Dr. Richard F Cole, Members of the Board, join in this Memorandum and Order.

It is so ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD DESIGNATED
TO RULE ON PETITIONS
FOR LEAVE TO INTERVENE

Robert M. Lazo, Chairman

Issued at Bethesda, Maryland
this 11th day of March, 1975

(Attachment A is omitted from this publication but is available at the Commission's Public Document Room, Washington, D.C.)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-9

ATOMIC SAFETY AND LICENSING BOARD

Daniel M. Head, Chairman
Dr. Marvin M. Mann, Member
Dr. Ernest O. Salo, Member

In the Matter of

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*

(Seabrook Station, Units 1 and 2)

Dockets Nos. 50-443
50-444

March 13, 1975

Upon motion by applicant for summary disposition of certain contentions raised by intervenors, Licensing Board, finding that 10 CFR §2.749(a) and 10 CFR §2.730(c) (relating to time for responding to various motions) are susceptible to differing interpretations, clarifies their meaning and applicability in the context of the filing of responses to motions for summary disposition where no date has been set for an evidentiary hearing, and compiles a pleading and hearing schedule for this proceeding consistent with its interpretation of those provisions.

RULES OF PRACTICE. MOTION FOR SUMMARY DISPOSITION

The purpose of the provisions of 10 CFR §2.749 relating to the time for filing summary disposition motions and responses thereto is to place a restriction on the last-minute filing of motions that could disrupt the hearing schedule, and to shorten the period for filing responses.

RULES OF PRACTICE. MOTION FOR SUMMARY DISPOSITION

To make the filing provisions of 10 CFR §2.749(a) compatible with the provisions of 10 CFR §2.730(c), and consistent with the goal of orderly and expeditious disposition of motions, §2.749(a) is construed to mean. (1) that a party may not file a motion for summary disposition within ten days of the date of the evidentiary hearing, and (2) that if such a motion is filed so close to the hearing date that the time to respond under §2.730(c) would not expire until the hearing had begun, the time to respond to such motion is shortened to two days prior to the hearing.

MEMORANDUM AND ORDER RELATING TO PLEADING AND HEARING SCHEDULE

On February 13, 1975 the Public Service Company of New Hampshire, *et al* (the Applicants) filed a motion for summary disposition regarding the contentions relating to the evacuation of Hampton Beach. These contentions are contention 2 of the Intervenor Elizabeth Weinhold, contentions 2(f) and 2(g) of the Intervenor State of New Hampshire, and contentions 3 and 19 of the Intervenor New England Coalition on Nuclear Pollution (NECNP). To date, none of the intervenors involved nor the U S. Nuclear Regulatory Staff (the Staff) has responded on the merits to the Applicants' motion for summary disposition. However, the Board received a partial response from the Staff and correspondence from both NECNP and the Applicants, with regard to filing responsive pleadings and setting a hearing on the motion for summary disposition.

The above-mentioned intervenors and the Staff have not responded to the motion for summary disposition within the time limits provided in 10 CFR 2.730(c),[1] apparently because of the language in 10 CFR 2.749(a) providing that a party may serve an answer opposing a motion for summary disposition two days before the date of the hearing. It is apparent from the information received by the Board that the parties have differing interpretations of the requirements of 10 CFR 2.749(a). To clarify this, the Board herein is setting out the following interpretation of 10 CFR 2.749(a), particularly regarding its interaction with the provisions in 10 CFR 2.730(c) specifying the time limitations for responding to motions.

Under 2.749(a), it is indicated that any party at least ten days before the time fixed for the hearing,[2] may move for a decision as to all or any part of the matters involved in the proceeding. Section 2.749(a) then specifies that any other party may serve an answer opposing the motion at least two days before the hearing. However, in cases such as the instant proceeding, where no date has as yet been set for an evidentiary hearing, to interpret 2.749(a) as permitting a person opposing a motion for summary disposition to wait until two days before the evidentiary hearing to respond to such motion would create an untenable situation. Such an interpretation would mean that there could be weeks or even months that a motion for summary disposition could remain unresolved unless specific action were taken to bring the matter to issue. To interpret Section 2.749(a) in such a manner also necessarily involves considering that the five and ten day periods for response to motions provided in 2.730(c) are not

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[1] Under that provision, the Intervenors have five days to respond after service of a written motion, and the Staff ten days.

[2] The term "hearing" is not defined as the evidentiary hearing but in the context of the Section, this seems the more reasonable interpretation.

applicable to motions for summary disposition and that, therefore, the operation of Section 2.730(c) is suspended, despite the fact that Section 2.730(a) refers to "all motions" In the Board's view such an interpretation is unreasonable and unwarranted.

Section 2.749(a) is susceptible to another interpretation that is compatible with Section 2.730(c) and is also consistent with the orderly and expeditious disposition of motions. The language in Section 2.749(a) that a party may move for summary disposition "at least ten days before the time fixed for the hearing" can be construed to mean that a party may not file such a motion within ten days of the date of the evidentiary hearing. Correspondingly the language in Section 2.749(a), that a party opposing a motion for summary disposition may answer "at least two days before the date of the hearing" can be interpreted to mean that, if the motion is filed so close to the hearing date that the time to respond under Section 2.730(c) would not expire until the hearing had begun,[3] then the time to respond is shortened to two days before the hearing. The purpose of Section 2.749 is, therefore, to place a restriction on the last-minute filings of motions for summary disposition that could disrupt the hearing schedule. In doing so, it also takes into account the necessity of shortening the response time, so the motion will be at issue prior to the hearing. Since this interpretation of Section 2.749(a) is the better reasoned, the Board will follow it in the instant case.

The Board, therefore, specifically rules that the provisions of 10 CFR 2.730(c) governing time to respond are not suspended with regard to the Applicants' motion for summary disposition and are not superseded by the provision of Section 2.749(a) indicating that answers to the motion may be filed two days before the hearing. However, since Sections 2.749(a) and 2.730(c) are susceptible to other interpretations, it is appropriate to grant the parties involved additional time to respond to the Applicants' motion. In view of this, the Board will in this Order set a specific schedule for responses to the Applicants' motion for summary disposition and for hearing on the motion.

Accordingly the Board hereby orders that the following pleading and hearing schedule be set:

1 The responses by the Intervenors to Applicants' motion for summary disposition are to be filed by March 26, 1975 [4]

2. In view of the indication by NECNP that cross-motions may be filed, such cross-motions are to be filed by March 26, 1975

3. The response by the Staff to Applicants' motion for summary disposition is to be filed by March 26, 1975

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[3] The situation envisioned here is a motion for summary disposition filed about ten to fifteen days before the evidentiary hearing.

[4] In the context of this Order, "to be filed" means that the parties shall place their pleadings in the mail to the Board and to other parties on or before the date specified.

4. A hearing on the motion for summary disposition and any cross-motions with regard thereto will be held April 16, 1975 at a time and place to be specified by separate order.[5]

BY ORDER OF THE ATOMIC SAFETY AND LICENSING BOARD

Daniel M. Head, Chairman

Issued at Bethesda, Maryland
this 13th day of March 1975.

[5] This hearing date should provide ample time for the Applicants and the Staff to respond to any cross-motions within the period provided in 10 CFR 2.730(c). Also, the hearing on the motion for summary disposition will be in the form of a prehearing conference, which will also cover other matters, such as the status of the cooling system hearing before the Environmental Protection Agency the status of discovery, and a schedule for further action including proposed dates for the start of the evidentiary hearing on health and safety issues.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-10

ATOMIC SAFETY AND LICENSING BOARD

Thomas W. Reilly, Chairman
Frederick J. Shon, Member
Dr. Frank F Hooper, Member

In the Matter of

GULF STATES UTILITIES COMPANY

(River Bend Station, Units 1 & 2)

Docket Nos. 50-458
50-459

March 20, 1975

Upon applicant's and staff's motions for summary disposition of intervenor's two remaining contentions, Licensing Board finds that (1) intervenor's contention 3, relating to applicant's ability to meet the Commission's "as low as practicable" requirements with respect to low level radiation releases, is the subject of an existing factual controversy between staff and applicant and, although intervenor's answer to such a motion is technically insufficient to sustain it on its own, intervenor's participation in this area would be worthwhile; and (2) intervenor's contention 4, relating to underground siting of nuclear power plants, does not present a practical or presently feasible alternate method of construction and need not be considered by the Board as a viable alternative in fulfilling its NEPA responsibilities.

Motions for summary disposition denied as to contention 3 and granted as to contention 4.

RULES OF PRACTICE: MOTION FOR SUMMARY DISPOSITION

The purpose of the summary disposition rule is to carefully test out, prior to hearing, whether a party has any evidence to support its contentions.

RULES OF PRACTICE. MOTION FOR SUMMARY DISPOSITION

A party opposing a motion for summary disposition must show that there exists a genuine issue of material fact with respect to each contention so attacked; such party need not show that it would prevail on the factual issues, but only that there are such issues to be tried.

RULES OF PRACTICE: MOTION FOR SUMMARY DISPOSITION

In deciding a motion for summary disposition, the record is to be viewed in the light most favorable to the party opposing the motion.

RULES OF PRACTICE: PUBLIC PARTICIPATION

As long as there is an issue of fact to be resolved between applicant and staff in the same area as an intervenor's contention, summary disposition of that contention, even where otherwise appropriate, should not be granted; intervenor's active participation in the hearing process would benefit the Board in its deliberations, as well as furthering the Commission's policy of deciding such concerns on the public record.

NEPA: RULE OF REASON

A rule of reason governs an agency's consideration of alternatives to a proposed action; alternatives which are remote, speculative or available only outside the time frame within which a new facility is required need not be considered.

RULINGS ON MOTIONS FOR SUMMARY DISPOSITION

The Board has before it for consideration two Motions for Summary Disposition, pursuant to §2.749 of the Commission's Rules of Practice (10 CFR Part 2). Both Applicant's Motion, dated February 4, 1975, and the NRC Regulatory Staff's (Staff) Motion, dated March 12, 1975, request this Atomic Safety and Licensing Board (the Board) to summarily dismiss the Intervenor's two contentions prior to the evidentiary hearing on the basis that there is no genuine issue of material fact appropriate for litigation at the hearing. Both motions have memoranda of law and supporting affidavits attached thereto. The Intervenor opposes these motions (see Intervenor's response dated March 7, 1975, which his counsel has advised the Board should also be deemed to respond to both motions). The Intervenor's response has a supporting affidavit and exhibits attached.

The parties agree that "the considerations governing summary judgment are analogous to those used in deciding a motion for a directed verdict" and that "the opposing party need not show that he would prevail on the factual issues, but only that there are such issues to be tried." *Public Service Co. of N. Hampshire* (Seabrook Sta.), LBP-74-36, RAI-74-5, 877, 877-878 (May 17, 1974), citing *Amer. Mfg. Mutual Assur. Co.* v. *ABC & Paramount Theaters*, 387 F.2d 280 (2 Cir. 1967); cf. 10 CFR §2.749 and Rule 56, FRCP. Furthermore, as the Staff points out, the purpose of the summary disposition rule "is not to cut

litigants off from their right of trial if they really have evidence which they will offer on a trial, it is to carefully test this out, in advance of trial, by inquiring and determining whether such evidence exists." *Whittaker* v. *Coleman*, 115 F.2d 305, 307 (5 Cir. 1940). Thus, in deciding a motion for summary disposition, the record is to be viewed in the light most favorable to the party *opposing* the motion. This the Board has done in evaluating the two motions and Intervenor's response. But, in order to defeat such motions, the Intervenor still must establish (or the Board must perceive from the record) that there does exist a genuine issue of material fact with respect to each contention so attacked. At this stage, mere allegations in the pleadings are not sufficient to establish the existence of an issue of material fact. 10 CFR §2.749(b); see *Orvis* v. *Brickman*, 95 F. Supp. 605 (USDC, D.C. 1951), *aff'd.* 196 F.2d 762 (D.C. Cir. 1952); see also 6 Moore §56.15[3].

To defeat summary disposition an opposing party must present facts in the proper form; conclusions of law will not suffice.[1] The opposing party's facts must be material,[2] substantial,[3] not fanciful, or merely suspicious.[4]

One cannot avoid summary disposition "on the mere hope that at trial he will be able to discredit movant's evidence; he must, at the hearing, be able to point out to the court something indicating the existence of a triable issue of material fact." 6 Moore's *Federal Practice* 56.15[4]. One cannot "go to trial on the vague supposition that something may turn up." 6 Moore's *Federal Practice* 56.15[3]. See *Radio City Music Hall* v. *U.S.*, 136 F.2d 715 (2nd Cir. 1943). In *Orvis* v. *Brickman*, 95 F. Supp. 605 (D.D.C. 1951), the Court, in granting the defendant's motion for summary judgment under the Federal Rules, said:

> All the plaintiff has in this case is the hope that on cross-examination . . . the defendants . . . will contradict their respective affidavits. This is purely speculative, and to permit trial on such basis would nullify the purpose of Rule 56 . . . .

In light of the above principles, were this proceeding simply a conflict between Applicant and Intervenor, based upon a review of the contents and substance of the Motions for Summary Disposition compared with the Intervenor's response thereto (including the supporting affidavit), the Board

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[1] *Pittsburgh Hotels Assoc.* v. *Urban Redevelopment Authority of Pittsburgh*, 202 F. Supp. 486 (W. D. Pa. 1962), aff'd. 309 F.2d 186 (3rd Cir. 1962), *cert. den.*, 376 US 916 (1963).

[2] *Egyes* v. *Magyar Nemzeti Bank*, 165 F.2d 539 (2nd Cir. 1948).

[3] *Beidler and Bookmeyer* v. *Universal Ins. Co.*, 134 F.2d 828, 831 (2nd Cir. 1943).

[4] *Griffin* v. *Griffin*, 327 U.S. 220, 236 (1946); *Banco de Espana* v. *Federal Reserve Bank*, 28 F. Supp. 958, 973 (S.D.N.Y. 1939), aff'd., 114 F.2d 438 (2nd Cir. 1940).

would be inclined to grant the Motions *in toto* and summarily dispose of both contentions. But this is not a typical judicial-type case involving only two directly opposed adversaries or two directly-contradicting positions. We have three active parties in this administrative proceeding.

Thus, we cannot evaluate two opposing positions (and their pleadings) *in vacuo.* Going beyond the pleadings, there is also, as a matter of record, a clear and very real dispute between the NRC Regulatory Staff and the Applicant as to the capability of the Applicant's presently-planned equipment to meet the Commission's "as low as practicable" requirements with regard to low level radiation releases from routine operation. True, there is a commitment by Applicant to provide additional equipment *if it fails to convince* the Staff of the adequacy of the presently planned equipment, but the dispute, a real issue of fact between Staff and Applicant, still exists. And this is the very area in which Intervenor wished to cross-examine and introduce evidence, albeit in a more limited fashion. Intervenor's Contention 3 includes the express allegation that:

> . . . low level radiation discharged during routine operation of the plant has not been adequately analyzed by the Applicant to ensure that the exposures to the public through the pasture-cow-milk pathway will meet the Commission's requirement that they be "as low as practicable."

In the face of this allegation, and the presence of an existing factual controversy between the Staff and Applicant in the same area, we do not think it would be appropriate or in the public interest to compel the Intervenor to forego cross-examination on this contention simply because, *taken alone,* his answer to the Motion would be technically insufficient to preserve his case in a one-to-one judicial-type lawsuit. We think that the Commission's policy of open resolution of environmental concerns, and the consideration of the differences between judicial and administrative proceedings, dictate a different result. To express it another way, as long as there is an issue of fact to be resolved between Applicant and Staff in the same area of interest expressed by the Intervenor, his active participation in the hearing process should be preserved and would benefit the Board in its deliberations, as well as furthering the Commission's policy of deciding such concerns on the public record.

Accordingly, the Board *DENIES* the two Motions for Summary Disposition with respect to Intervenor's Contention 3, and further directs the Regulatory Staff and Applicant to present testimony delineating the areas of their respective differences in proposed gaseous release control equipment, which testimony the Intervenor will be permitted to cross-examine and rebut with his own evidence and testimony.

Turning to Intervenor's Contention 4,[5] we find a different situation. It is clear from a review of the supporting affidavits, including admissions by the Intervenor's expert, Professor Kazman, in both his deposition[6] and his affidavit, that underground siting of nuclear power-plants is not yet a viable, reasonably practical, presently-available alternative today. Professor Kazman, in effect, urges only that such a method of construction should be seriously studied and attempted by the Applicant.[7] But the Applicant, a public utility, is not in the business of exploratory or developmental R&D. Rather, it is strictly limited in what it may do with its construction funds. It is required, by its nature as a public utility, to accommodate and meet the public's projected demand for electric power—and within the framework of a fairly rigid time schedule. It is not the appropriate agency to devote large sums of money to experimental R&D, and, then, if that experiment does not work, to "attempt" some other construction experiment with the use of its customers' money.

Following, then, the "rule of reason" test for determining what environmental alternatives an agency must consider in fulfilling its "NEPA"[8] responsibilities, the Board concludes that, insofar as we can determine from the papers before us, Intervenor's Contention 4 does not present a reasonably practical or presently-feasible alternative to the proposed method of construction of the River Bend nuclear facility, in terms of costs, present availability of alternative technology, or the time-frame in which the new electric power is needed to be on-line. See *NRDC v. Morton,* 458 F.2d 827, 837-838 (D.C. Cir. 1972), on the "rule of reason" principle that "NEPA" was never intended to require an agency to extend environmental consideration to alternatives that are remote, speculative or outside the time-frame within which the new facility is needed.

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[5] Contention 4. "For this specific plant in this locality underground siting would give greater safety and less environmental impact than the proposed above ground siting, and such underground siting has been demonstrated to be practical by plants in other areas."

[6] At one point in his deposition, Professor Kazman was asked: "Has the siting of a nuclear plant in a salt dome been demonstrated as practical?", to which he replied: "To my knowledge it hasn't; to my knowledge it has never been tried." (Quoted in Applicant's brief, p. 33, and see depos. tr. p. 71.)

[7] Professor Kazman's affidavit asserts that: "The feasibility of *mining a cavern* in domal salt must be considered as a proven engineering practice and merits serious *study* and a serious *effort* to build the station underground." (Emphasis added.) He uses the existence of salt mines in Louisiana as support for this conclusion. However, the Board sees a substantial gap between the existence of salt mines and caverns and the construction of nuclear powerplants far underground. Further, the urging of "serious studies" and "serious efforts" is far from an allegation that there is an already-existing, proven, practical technology of placing such complex operational facilities underground (as opposed to merely removing materials from [mining] underground).

[8] National Environmental Policy Act of 1969, P.L. 91-190, 42 U.S.C. §4321, 83 Stat. 852.

Accordingly, the Staff's and Applicant's Motions for Summary Disposition of Contention 4 are *GRANTED.*

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Thomas W. Reilly, Esq., Chairman

Issued at Bethesda, Maryland
this 20th day of March, 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-11

ATOMIC SAFETY AND LICENSING BOARD

Daniel M. Head, Chairman
Dr. Marvin M. Mann
Dr. Donald P. de Sylva

In the Matter of

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

(WPPSS Hanford No. 1 and No. 4)

Docket Nos. 50-460
50-513

March 20, 1975

Upon petitions to intervene in construction permit proceeding, Licensing Board (1) permits Thermal Council to participate as a representative of an interested State pursuant to 10 CFR §2.715(c); and, (2) permits Donald F. X. Finn to participate as a party. Board finds that although the petitioner's concern regarding transportation, reprocessing and disposal of radioactive waste was not set out with sufficient particularity to meet the interest requirements of 10 CFR §2.714(a), his business interest as a potential supplier of geothermal energy to the area involved did satisfy those interest requirements. Petitioner's one contention relating to the latter interest was found adequate.

Petitions to intervene granted.

RULES OF PRACTICE: STANDING TO INTERVENE

Judicial decisions on standing cannot be directly applied to interpreting the Commission's interest requirements, since stronger or more definite proof of injury is needed to establish standing in court than to demonstrate interest under 10 CFR §2.714(a). To have standing in court, petitioner must allege some injury that has occurred or will probably result from the action involved (*cf. United States* v. *SCRAP*, 412 U. S. 669 (1973); *Sierra Club* v. *Morton*, 405 U. S. 727 (1972); *Association of Data Processing Service Organizations, Inc.* v. *Camp*, 397 U. S. 150 (1970)); whereas to fulfill the interest requirements of 10 CFR §2.714, petitioner need only allege that his/her interest *may* be affected by the results of the proceeding (*cf. Northern States Power Company* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-107, RAI-73-3,188 (March 29, 1973)).

RULES OF PRACTICE: STANDING TO INTERVENE

An allegation of possible harm may be sufficient to satisfy the interest requirements for intervention under 10 CFR §2.714.

ATOMIC ENERGY ACT: SCOPE OF INTERESTS PROTECTED

An economic interest in an alternative form of energy, even though based on assumptions regarding future developments, falls within the scope of interests to be protected under the Atomic Energy Act.

NEPA: SCOPE OF INTERESTS PROTECTED

Even though contentions may be based on NEPA considerations, the determination as to whether a petitioner's interest is within the scope of interests to be protected in a Commission proceeding must be made on the basis of the Atomic Energy Act, not on NEPA, since the hearing requirements stem from the Atomic Energy Act.

MEMORANDUM AND ORDER

The purpose of this Memorandum and Order is for the Atomic Safety and Licensing Board (the Board) to rule upon two outstanding petitions to intervene in the above-captioned proceeding. The first is the petition by the Thermal Power Plant Site Evaluation Council (the Thermal Council) of the State of Washington requesting permission to participate as a representative of an interested State pursuant to §2.715c of the U. S. Nuclear Regulatory Commission's (the Commission) Rules of Practice, 10 CFR Part 2. The second is a petition to intervene filed by Mr. Donald F. X. Finn pursuant to §2.714(a) of the Rules of Practice. These petitions had been considered by the Board at the Special Prehearing Conference held in Richland, Washington, on December 5, 1974, and had been taken under advisement at that time. The Board had requested at that time that the Thermal Council supply certain additional information prior to the Board's ruling on its petition. Also, the Board by letter dated January 17, 1975, reiterated its request for this information and also sought additional information from Mr. Finn relating to his petition.[1] The requested information has now been received and the Board will rule herein upon the two petitions.

[1] These requests were made formal requirements in the Board's First Prehearing Conference Order of February 5, 1975. By consent of the parties, the information requested from Mr. Finn was made of record in this proceeding. This information is identified in correspondence of January 27, 1975, from the Applicant to the Board Chairman, a copy of which is attached hereto as Exhibit B.

I. THE THERMAL COUNCIL

By letter dated February 4, 1975, the Thermal Council supplied the Board with appropriate documentation from the Governor of the State of Washington indicating that the Thermal Council is the proper entity to represent the State pursuant to 10 CFR 2.715(c). A copy of that letter and the documentation from the Governor is attached hereto as Exhibit A. (Exhibit A is omitted from this publication.) In view of this, the Board hereby grants the petition by the Thermal Council to participate in the proceeding as a representative of an interested State pursuant to 10 CFR 2.715(c).

II. MR. DONALD F. X. FINN

The petition to intervene filed by Mr. Finn primarily raises an issue of whether the petition complies with the interest requirement of 10 CFR 2.714(a). Basically, Mr. Finn rests his interest argument on two grounds: the first, his concern regarding the transportation, reprocessing and disposal of radioactive waste as a citizen who will be a part-time resident and visitor in the State of Washington and secondly, his business interest in the geothermal energy industry. One facet of the interest issue can be readily dealt with but the other requires more extensive consideration. The Board will, therefore, deal with the less complicated issue first.

In the Board's view, Mr. Finn's concern regarding the transportation, reprocessing and disposal of radioactive waste is not set out with sufficient particularity to meet the interest requirements of §2.714(a). While Mr. Finn alleges he will be a part-time resident and visitor in Washington, no specifics of this claim are provided. Further, the petitioner resides in San Francisco, California, about 600 miles from the proposed plant location around Richland, Washington, and no showing is made of how he individually may be affected by the transportation, reprocessing and disposal of radioactive waste from the WPPSS 1 and 4 facility. On these facts, the Board finds this averment of interest is not adequate to sustain intervention by Mr. Finn.

However, the basic thrust of the petition to intervene is that the petitioner has business interest as a potential supplier of geothermal energy and that these interests are sufficient to meet the requirements of §2.714(a). A further issue is whether the petitioner has shown how the outcome of the proceeding may affect his alleged interest.[2] Initially, a brief review of the facts presented is appropriate.

[2] Regarding contentions, the petition appears to contain only one actual contention—that is, that inadequate consideration has been given to geothermal energy as a viable alternative to the proposed nuclear facility. Whether this contention meets the requirements of §2.714(a) is discussed following the Board's analysis of the interest issue.

The petitioner is located some 600 miles from the proposed site of the facility and this must be taken into account, although it is not an overriding factor in assessing interest. More importantly, Mr. Finn alleges that he is a managing director of the Geothermal Energy Institute, a consulting and advisory group, and that he is an officer, director or part-owner of certain organizations which have applied and/or are applying for geothermal leases in the States of Washington, Oregon and Idaho. However, the petitioner has not identified any geothermal leases he has actually obtained and therefore cannot point to an actual area of geothermal energy he could develop as an alternative to the nuclear plant. On the other hand, it is possible that the geothermal leases might be secured and actually present a viable alternate source of energy to the power to be produced from the plant. The issue raised is whether the above facts can be considered a sufficient "interest" under §2.714(a) to sustain intervention. To make a meaningful resolution of this issue, it is warranted to analyze the appropriate case law and to review the cases of the Atomic Safety and Licensing Appeal Board having precedential value regarding the interest requirement.

At the outset, a question is raised whether the interest needed for intervention in a Commission licensing proceeding should be governed by the same principles a court would apply to determine whether a party has standing to bring an action in court. In this regard, a brief look at the law of standing is helpful.[3] To determine standing, the courts apply the test set out in *United States* v. *Scrap*, 412 U.S. 669, (1973); *Sierra Club* v. *Morton*, 405 U.S. 727, (1972); and *Association of Data Processing Service Organizations, Inc.* v. *Camp*, 397 U.S. 150, (1970), where a plaintiff must allege that the challenged agency action has caused him "injury in fact," economic or otherwise. In addition to economic injury, the injury may reflect aesthetic, conservational, and recreational values. A second consideration in the test of standing, where a specific statute is involved, is whether the interest alleged is within the zone of interest to be protected by the statute. In addition, where a particular statute is not relied upon to authorize invocation of the judicial process, the question of standing depends upon whether the party has alleged such a personal stake in the outcome of the controversy as to insure that the dispute sought to be adjudicated will be presented in an adversary context and in a form historically viewed as capable of judicial resolution. *Sierra Club* v. *Morton, supra* at p. 732.

To determine whether the law of standing applies to the "interest" requirement of §2.714(a), attention can be focused on agency authority relating to the interest requirement.

[3] The cases on standing to sue in court present a complex legal picture involving a variety of factual circumstances. However, a detailed exploration of the law of standing is unnecessary for the purposes of this Memorandum and Order, and the discussion herein is not intended to be a comprehensive analysis of the law of standing.

The Atomic Safety and Licensing Appeal Board (the Appeal Board) has on various occasions discussed the interest requirement of §2.714(a). See *Virginia Electric Power Company (North Anna Power Station, Units 1 and 2)* ALAB 146, RAI-73-9, 631 (September 14, 1973); *Mississippi Power and Light Company (Grand Gulf Nuclear Station, Units 1 and 2),* ALAB 130, RAI-73-6, 423 (June 19, 1973); *Duquesne Light Company, et al. (Beaver Valley Power Station, Unit 1),* ALAB-109, RAI-73-4, 243 (April 2, 1973); and *Northern States Power Company (Prairie Island Nuclear Generating Plant, Units 1 and 2),* ALAB-107, RAI-73-3, 188 (March 29, 1973). The *Prairie Island* decision is the case which provides the most guidance for resolution of whether to apply the court law of standing in determining interest under §2.714(a). In *Prairie Island,* the Appeal Board assessed the facts alleged regarding the interest of one of the petitioners and held that they provided:

> A sufficient foundation for their standing to intervene as persons "whose interest may be affected" by the grant of an operating license to this facility. Cf. *Sierra Club* v. *Morton,* 405 U. S. 727 (1972). In this connection, we reject Applicant's insistence that these individuals live at too appreciable a distance from the site to have an effective interest. Without attempting to lay down any inflexible standard, we deem distances of thirty to forty miles from this reactor site as not being so great as to require the conclusion that residents of Minneapolis and Northfield are geographically outside the zone of interest protected by the Atomic Energy Act. Cf. *Association of Data Processing Service Organizations, Inc.* v. *Camp,* 397 U. S. 150 (1970).

The important point in *Prairie Island* is the Appeal Board's reliance upon the *Sierra Club* and *Data Processing* cases as authorities setting out a legal rule different from that governing the interest requirement but significantly analogous to lend some support to it. It would appear, therefore, that the law of standing is analogous in rationale to the principles governing interest under §2.714(a) but sufficiently distinct from them that the law of standing cannot be applied directly.

Further, a review of the statutory basis for §2.714(a) and the language of §2.714(a) itself indicate a distinction between the law of standing and the right to participate in the agency adjudicatory process. To have standing in court, there must be some injury that has occurred or will probably result from the agency action involved. On the other hand, Section 189 of the Atomic Energy Act, 42 USC 2239, provides that the Commission shall grant a hearing upon the request of any person "whose interest *may* be affected by the proceeding, and shall admit any such person as a party to such proceeding." [Emphasis added.] Also, §2.714(a) provides for the filing of a petition to intervene by "any person whose interest may be affected by a proceeding": and §2.714(b) states that the petitioner shall set forth how his "interest *may* be affected by the results of the

proceeding." [Emphasis added.] It would appear, then, that stronger or more definite proof of injury is needed to establish standing in court than to demonstrate interest under §2.714(a).

An analysis of the interest requirement under the Atomic Energy Act and the Commission regulations indicates that it is prospective in nature. This seems reasonable in view of the nature of the Commission licensing process. A petitioner is rarely, if ever, in a position to show any injury in fact since construction or operation of the facility are normally future events, the effect of which will not take place until termination of the licensing hearing. Because of this, a petitioner cannot definitely establish that his interest will be affected by the results of the proceeding. Petitioners can and do rely upon allegations that their interest may be affected, averments that are necessarily somewhat speculative. For example, a fisherman can allege that his economic interest may be adversely affected by disruption of fishing caused by the plant discharge even though the facts may ultimately show that the discharge will be beneficial from a fishing standpoint. Despite this, the allegation of possible harm is a sufficient allegation of interest to sustain intervention. Similarly, a person living within the vicinity of the plant may claim an interest because of exposure to effects of an accident that might occur during the life of the plant. Again, it is arguable that an accident affecting the petitioner might never occur and that, therefore, the interest is speculative. Nonetheless, these allegations of interest are considered sufficient to sustain intervention under §2.714(a).

Also, another factor in determining interest under §2.714(a) must be taken into account. The same rationale that applies in the law of standing to an interest that is remote appears applicable to the interest considerations under §2.714(a).[4] In the context of the Commission licensing proceedings, and within the framework of this particular case, the issue of remoteness appears to constitute the crux of the problem presented. The basic question is whether the business activity by Mr. Finn and his pursuance of geothermal potential in and around the State of Washington give him sufficient contact with the proceeding to sustain intervention. In this regard, Mr. Finn's position is that his business activities will mature into a viable geothermal energy business which may be adversely affected by construction of the WPPSS 1 and 4 facilities. The adverse effect would be a retardation of geothermal development or a detriment to its

[4] In this regard, attention can be drawn to the factual situation in *U. S.* v. *Scrap*, supra, where plaintiffs were granted standing in court to challenge a railroad rate increase on the basis that there would be an adverse environmental impact caused by the non-use of recycleable goods brought about by the rate increase. Another case raising the issue of remoteness is *Marine Space Enclosures, Inc.* v. *Federal Maritime Commission*, 420 F.2d 577, 590-592 (D. C. Cir. 1969). Considering this case authority, a reasonable argument can be advanced that Mr. Finn has a sufficient interest for intervention purposes even if the law of standing is considered directly applicable.

marketability. These allegations are necessarily speculative in that they require assumptions regarding future events. These assumptions, however, do not appear to be more speculative than those postulated by the fisherman or the resident within the area who could be affected by an accident. In the Board's view, the petitioner's business activity is not too remote to be considered an interest that may be affected by the proceeding, within the meaning of §2.714(a).

While the Board has in effect rejected the strict application of the "injury in fact" test of the law of standing to determine interest under §2.714(a), a further point should be discussed. An argument can be raised that Mr. Finn's interest is not within the zone of interest to be protected under the relevant statutes. However, the Board considers that an economic interest in an alternate form of energy is an interest within the scope of interests to be protected under the Atomic Energy Act. Further, a point can be advanced that the petitioner's interest is based upon the National Environmental Policy Act (NEPA), 42 USC 4321 *et seq.*, since it is under that statutory obligation that the agency considers alternate forms of energy. While this is correct, NEPA is not an enforcement or regulatory act giving the right to administrative hearings. It is a policy act, setting out agency obligations which can become an issue in administrative proceedings initiated under another statute, which in our case is the Atomic Energy Act. It is, therefore, inappropriate to consider NEPA as a statute designed to protect particular interests. NEPA sets a policy for protection of the environment and is not intended to relate specifically to a class of individuals attempting to participate in licensing hearings. While the contention of the petitioner in this particular case is based on NEPA, nonetheless the determination of his interest for purposes of assessing his right to intervene must be made on the basis of the interest requirement set out in the Atomic Energy Act.

A final area relating to Mr. Finn's participation should be noted. He has petitioned to intervene in various other licensing proceedings with a variety of results. He was admitted as a party intervenor in *Portland General Electric Company (Trojan Nuclear Plant)* by unpublished order of the presiding Atomic Safety and Licensing Board (May 18, 1973). However, he was excluded from participation as an intervenor in *Mississippi Power and Light Company (Grand Gulf Nuclear Station, Units 1 and 2),* Second Prehearing Conference Order, Docket Nos. 50-416, 50-417 (July 9, 1973) on the basis that his alleged business interest in the territory of the proposed facility was too speculative to sustain intervention. There, Mr. Finn took the position that he intended to seek geothermal leases in the general vicinity of the Grand Gulf facility but he had not taken any actual action to pursue this activity. Lastly, Mr. Finn was a petitioner to intervene in *Washington Public Power Supply System (WPPSS Nuclear Projects Nos. 3 and 5),* Docket Nos. 50-508, 50-509. There his petition to intervene was denied on the basis that he had not shown the requisite interest under §2.714(a).

Considering the entire situation, both factual and legal, the Board has come to the conclusion that, while a close question, the issue regarding interest must be resolved in favor of Mr. Finn. The information submitted shows that the petitioner has explored the geothermal potential in the State of Washington and owns interest in corporations and other business entities that are actively pursuing securing geothermal leases in the State of Washington and adjacent states. Mr. Finn has, therefore, demonstrated more than a mere intent to pursue the geothermal business potential in the State of Washington and is in fact making substantial efforts in this regard. While it is necessarily speculative whether such efforts will mature into a viable business and whether that business will be affected by construction of the WPPSS 1 and 4 facilities, it is nonetheless an interest that *may* be affected. It is reasonable to conclude that use of the language "may be affected" in Section 189 of the Atomic Energy Act and in §2.714(a) is intended to include interests such as Mr. Finn's which are based on assumptions regarding future developments. In the Board's opinion, the interest asserted by Mr. Finn does meet the requirements of §2.714(a) and his petition must be granted. Accordingly, the Board hereby grants the petition and admits Mr. Finn as a party to the proceeding.

Further, the Board has considered the contention advanced by Mr. Finn and hereby admits it as an issue in controversy. As interpreted by the Board, this contention is that the Applicant has not given adequate consideration to geothermal energy as an alternative to the proposed plant.

III. DISCOVERY

The Final Environmental Statement has now been issued by the Staff and therefore the relevant documents relating to environmental impact are now of record. Discovery with regard to the contention admitted as a result of Mr. Finn's petition to intervene is hereby opened and will remain open until Monday, April 21, 1975, unless the time for discovery is extended for good cause shown.

In view of the issuance by the Staff of the Final Environmental statement, it is anticipated that the Board will schedule the evidentiary hearing on environmental matters in late April or early May. The Applicant has filed a

motion in this regard and following response thereto by the other parties, the Board will set a date for the evidentiary hearing by separate notice and order.

BY ORDER OF THE SAFETY AND
LICENSING BOARD

Daniel M. Head, Chairman

Issued at Bethesda, Maryland,
this 20th day of March 1975

(Exhibit A is omitted from this publication but is available at the Commission's Public Document Room, Washington, D. C.)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-12

ATOMIC SAFETY AND LICENSING BOARD

Samuel W. Jensch, Chairman
Dr. David B. Hall, Member
Lester Kornblith, Jr., Member

In the Matter of

VERMONT YANKEE NUCLEAR POWER CORPORATION

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

March 24, 1975

On remand from Appeal Board, Licensing Board sets forth the additional information found necessary by ALAB-245 (and also by ALAB-246 and ALAB-250) to resolve intervention question, and (1) reaffirms its previous order denying petitioner's intervention; (2) denies petitioner's request to amend its intervention petition; and (3) refuses to refer to a licensing board, for a hearing on the merits, petitioner's request for a revocation or stay of amendment to Vermont Yankee's operating license.

Mr. Jensch dissents.

DECISION ON REMAND FROM APPEAL BOARD

We have before us two separate but related issues in the captioned case. First, we have a remand by the Appeal Board[1] of our Order of October 22, 1974[2] denying New England Coalition on Nuclear Pollution (NECNP) intervention in a proceeding to amend the license of the licensee. This remand was for the purpose of obtaining certain additional information as a basis for granting or denying intervention. Second, we have a request by NECNP to amend its original petition to intervene and to permit intervention. In addition, NECNP requests that this Board refer NECNP's request that the December 3, 1974, amendment

[1] ALAB-245, RAI-74-11 873. See also ALAB-246, RAI-74-12 933 and ALAB-250, RAI-74-12 990.

[2] RAI-74-10 715.

to the Vermont Yankee operating license be revoked or its effectiveness stayed to a licensing board established to rule on the merits of the Petition to Intervene. In this Decision we set forth the additional information we have been directed by the Appeal Board to obtain, reaffirm our previous order denying intervention and deny NECNP's petition and to revoke or stay the amendment.

1. The Appeal Board in ALAB-245 has directed that this Board obtain, for the record,

> an explanation as to what factors played a part in the April 1974 decision to adopt less stringent limitations on emissions that we had been led to believe would be in effect. In particular, the Staff must indicate whether the excessively high leakage rate in the existing fuel was a factor in that decision. If it was, intervention must be granted; if the Board becomes satisfied that it was not, intervention should be denied.[3]

In ALAB-246, the Appeal Board repeated its directive in only slightly different words:

> The purpose of the remand is *only* to develop on the record the Staff's reasons for establishing limits higher than 1 and 2%, and then to determine if sufficient nexus exists to warrant granting intervention.[4] (emphasis added)

Again in ALAB-250, the Appeal Board stated:

> In view of these circumstances, we adhere to the view that a remand is in order. We repeat that we are asking for *nothing more or less* than an explanation of why the technical specifications were changed, with particular reference to whether consideration of leaking fuel played a part in the decision to make that change.[5] (emphasis added)

In Orders dated December 4 and December 6, 1974, the intervention Board directed the Staff to supply the specified data and also provided an opportunity for Vermont Yankee and NECNP to respond. The Staff filed its response,[6] accompanied by two affidavits, on February 15, 1975 and the licensee and NECNP responded on February 25 and February 28, 1975, respectively. The Staff in its response "states unequivocally that a specific fuel leakage rate for the existing fuel was not considered by the NRC Staff"[7] in authorizing the revised Technical Specifications of April 10, 1974. The Staff further states that the revised Technical Specifications were based on proposed Appendix I and 10 CFR §50.36a(b) to the extent that they provide for operating flexibility or permissible variations from the "as low as practicable" design objectives set forth

[3] RAI-74-11 873, 877.
[4] RAI-74-12 933, 934.
[5] RAI-74-12 990, 992.
[6] NRC Staff's Response to Board Orders dated December 4, 1974, and December 6, 1974.
[7] *Ibid.*, p. 2.

in the revised Technical Specifications. These provisions for flexibility (as they relate to gaseous releases) are provided in Sections 3.8.C.1.b and 3.8.C.1.c of the revised Technical Specifications and are attached to the Staff's response.

We have examined the methods used by the Staff to establish the several limits on gaseous effluent releases. These methods are set forth in the Affidavit of Frederic D. Anderson, attached to the Staff's February 15, 1975 response, and in the "Bases" for the Technical Specifications[8] and are succinctly stated in ALAB-250.[9] The Board has compared these procedures with the requirements of proposed Appendix I and finds them to be identical. In view of this, it is clear to this Board that the leakage characteristics of the particular fuel involved did not play a part,[10] and the Board so finds.

2. We come now to NECNP's request to amend its petition to intervene by adding the following "alternative contention":

> There is inadequate evidence of the expected performance of 8 X 8 fuel rods during normal operation and transients to support a conclusion that the mechanical design of 8 X 8 fuel will provide adequate protection for the public health and safety. The rods may be damaged by thermal stresses, internal and external gas and water pressures, fretting, vibrations, seismic loads, blowdown transients and other expected normal and accident conditions to the point where the public health and safety will be endangered by excessive release of radioactivity.

Its request is based on what it asserts is information not known to it earlier than December 6, 1974; namely, that the Appeal Board had rejected the factual basis for NECNP's earlier assumption that "all aspects of the mechanical performance of 8 X 8 fuel and its ability to withstand normal operation and transients was well-established". The statement on which this claim is based appears in ALAB-246 and is as follows:

> At this point in the development of 8 X 8 technology it would be premature to attempt to establish different leakage rates for the two types of fuel. See ALAB-245, fn. 7.

The Applicant and the Staff have both responded to the effect that NECNP's use of this statement is a strained and improper interpretation of a sentence taken out of context. This Board has carefully reviewed ALAB-246, as well as ALAB-245 and ALAB-250. Reading the Appeal Board's statement in conjunc-

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[8] The "Bases" are not included in the excerpts from the Technical Specifications attached as Appendix A to the Staff's response, but they were included in the material supplied by the Staff to all parties under cover of a letter of November 12, 1974, from David E. Kartalia to Michael C. Farrar, Esq.

[9] RAI-74-12 990, 991.

[10] The fact that some fuel does leak to some extent, as well as the available methods for treating such leakage, was taken into account, of course, in the preparation of proposed Appendix I in selecting the design objective of 2%.

tion with the previous sentence of that paragraph, the cited footnote and the other relevant positions of the decision, the Appeal Board's position, in our view, can be paraphrased as follows:

> NECNP's petition first seeks to establish on remand a "reasonable, general expectation" as to leakage rates for 8 x 8, as compared to 7 x 7, fuel rods. We have previously stated that, generally, neither a change in fuel nor a discovery that a given batch of fuel is performing above or below expectations should provide a basis for a change in the applicable limitations on releases. Over the long term, evaluation of statistically significant amounts of operation with improved fuel may lead to reductions in the leakage rates that are "practicable" to achieve, but at this point in the development of 8 x 8 technology such experience does not exist. For this reason it would be premature now to conclude that the expected leakage rate for the 8 x 8 fuel would be significantly different than that for the 7 x 7 fuel.[11]

If our reading of the Appeal Board's position is correct, NECNP's assertion—that the Appeal Board has rejected the factual basis for the conclusion that the ability of 8 x 8 fuel to withstand normal operation and transients is well-established—is without support. Under these circumstances there are no grounds for NECNP's request to amend its petition to intervene and it is denied. In view of this denial, we also deny NECNP's request that we refer its request for a revocation or stay of the December 3, 1974, amendment to the Vermont Yankee license to a licensing board to be heard on its merits.

ATOMIC SAFETY AND LICENSING BOARD

David B. Hall, Member

Lester Kornblith, Jr., Member

Dated at Bethesda, Maryland,
this 24th day of March 1975.

SEPARATE STATEMENT OF SAMUEL W. JENSCH:

If the issue specified by the Appeal Board for the remand is as narrow as believed to be by my colleagues, i.e., whether the leak rate in the fuel which was

[11] We have received and considered the Staff's submittal of March 13, 1975, and NECNP's submittal of March 17, 1975. NECNP's point that experience with the new fuel continues to accumulate is, of course, correct. In our view, however, the accumulation is not yet sufficient to provide a statistical basis for any changes.

authorized prior to April 10, 1974 was so excessive, that for that reason, the Staff changed the technical specifications to what the Appeal Board termed were less stringent technical specifications, then to that extent, I believe the Staff, in its February 15, 1975 submittal, has presented data that satisfactorily answer that issue.

It is not my impression, however, that the Appeal Board so narrowly limited the remand considerations. The Appeal Board stated in ALAB-245:

> ....The Commission's "as low as practicable" regulations require that a number of factors, including any hazard to public health, be considered in ascertaining the appropriate limitations on emissions. Some degree of fuel leakage must always be anticipated. Of necessity, then, a factor representing fuel leakage must be considered in determining what is "as low as practicable". The only sensible approach consistent with the purpose of the regulations is to take into account the reasonable, general expectation for the rate of fuel leakage. In our opinion, the limitations thus established should not, in the absence of extraordinary circumstances, be varied to take account either of fuel which proves to have an excessively high leakage rate or of fuel which proves to be of exceptionally good quality.
>
> This being the case, neither a change in fuel, nor a discovery that existing fuel rods are performing either well above or well below expectations, should provide a basis for a change in the applicable limitations on releases.[7]

The footnote is as follows and serves as a basis for further identification of the petitioner's contention:

> [7] On the other hand, information developed over the long term as to what can be reasonably expected in terms of fuel performance could affect what is "practicable" to achieve. In other words, what is relevant is the standard expected to be met, rather than the actual performance of one lot of fuel.

The foregoing quotations are utilized by the petitioner for its contention that an evidentiary hearing is needed to develop whether the "extraordinary circumstances" exist to warrant a change in technical specifications and whether the "long term" has occurred to permit development of data to assist in the determination of the relevant standard expected to be met by the operation of the 8 x 8 fuel.

The additional portion of ALAB-245 is impliedly considered by petitioner for its contention:

> During the reactor's operating lifetime, developments may occur over the long term which could affect earlier beliefs as to what is "low as practicable". Some developments may warrant investigation to determine whether emission limits should be revised.

In other words, petitioner assumes that the Appeal Board agrees that at some time, emission limits may be or need to be reduced and petitioner urges that the time for that consideration is now.

In ALAB-246, the Appeal Board stated:

> NECNP's petition first seeks the right to establish on remand a "reasonable, general expectation" as to leakage rates for the 8 X 8, as compared to 7 X 7, fuel rods. At this point in the development of 8 X 8 technology it would be premature to attempt to establish different leakage rates for the two types of fuel.

In further filings by the petitioner, it is contended that the data are not identified for declaring prematurity for setting different leakage rates, and in any event, petitioner contends that different leakage rates should be established since it is possible to do so.

The Appeal Board in ALAB-250 concluded that on the basis of the record for the operating license, the Board understood that releases from the plant "*. . . would be kept, on the average, to the 1 and 2% levels*" and that ". . . the present technical specifications permit the 1 and 2% levels to be exceeded on a regular basis by 100% without any corrective action being required."

Basically, however, this proceeding involves 8 X 8 fuel. The Commission issued a notice of proposed changes by amendment to an operating license and a change in technical specifications, and provided for an opportunity for hearing (39 *Federal Register* 24,046, June 28, 1974). The notice referred to a proposed amendment to permit 8 X 8 fuel assemblies, and to a proposed revision of Technical Specifications limiting the conditions for operation associated with fuel densification for the fuel assemblies. NECNP has sought a hearing by its petition that contends that if the 8 X 8 fuel is better, then a rate lower than for the previously authorized[12] 7 X 7 fuel and at a level as low as practicable should be established. Opposition by Applicant and the Staff to the petition asserted that such an analysis would be re-doing the low as practicable rulemaking hearing. The Appeal Board dismissed that assertion as invalid.

Applicant has stated that the proceeding contemplated by the Commission's published notice ". . . involves the mechanical and nuclear design of the 8 X 8 fuel as well as the analyses of abnormal operational transients and design basis accidents of that fuel." The Staff likewise asserts that the scope of the proposed

[12] The Appeal Board has noted that no opportunity for a hearing was provided by the procedure adopted to change the technical specifications which was accomplished in April 1974, shortly after the Appeal Board had approved the technical specifications presented in the evidentiary hearings held in reference to the operating license.

The Staff explanation for the April 1974 change in tech specs was to conform to a proposed regulation I. The specifics for the proposal were initiated in July 1973, and could have been incorporated in the tech specs during the course of and be considered in the appellate review.

amendment and changes relates to the thermal, hydraulic and mechanical design of the fuel and their adequacy and the fuel's performance under anticipated transients and accident conditions.

Applicant "hopes" that the 8 x 8 fuel will not have hydriding problems as did the originally loaded 7 x 7 fuel. The further NECNP contention is that if a rate for leakage for 8 x 8 fuel cannot be established now, then NECNP contends that something must be wrong (enumerating several possibilities, such as: wall thickness, thermal stress, vibrations, gas and water pressures, etc.) with the 8 x 8 fuel, either as to its mechanical performance or structural integrity. The Applicant implies that the 8 x 8 fuel is not mechanically imperfect nor lacking in structural integrity. The question raised by the petitioner whether operating experience is needed, in order to ascertain what the level of leakage should be, presents a further problem. This can be illustrated by the concept of what the public concern would be if a new model of an automobile were allowed to wobble all over the highway until operating experience could develop whether the steering gear mechanism would finally take hold and render the auto safe on the highway. Or, to be conservative, to consider the possibly unlikely and incredible occurrence, the steering gear mechanism may not work, and the car could run amuk in the traffic. The contention of the intervenor is that some demonstration of safety should be made or a level of release rates of the 8 x 8 fuel should be established, before the public is exposed to the use of the fuel.

The views of the parties are thus in conflict about facts which could be resolved by a hearing. The petition for intervention also refers to allegations that fuel densification is no longer a limiting condition but that reference may be a part of the contention respecting low as practicable releases. In my opinion, it is not clear that at the present time there is an adequate record of facts to warrant the several conclusions made respecting the 8 x 8 fuel, so that evidence would assist in a determination of whether a leak rate can be established at this stage in the operating history. The leakage rate is a safety consideration that need not be postponed to some future and indefinite time. The petitioner's contention might be answered by a dissertation that could be examined of why a demonstration of leakage rate is not available or necessary, or possibly, but of least usefulness, by a calculation of the safety of the leakage rate of the 8 x 8 fuel, with its steering gear importance. I would grant the petition to intervene, permit a hearing board to specify the precise scope of the issues, and let this matter be resolved on an evidentiary record.

Samuel W. Jensch

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-13

ATOMIC SAFETY AND LICENSING BOARD

Marshall E. Miller, Chairman
Sidney G. Kingsley, Member
Margaret M. Laurence, Member

In the Matter of

Docket No. 50-482A

KANSAS GAS AND ELECTRIC COMPANY AND KANSAS CITY POWER AND LIGHT COMPANY

(Wolf Creek Generating Station, Unit No. 1)

March 27, 1975

Licensing Board grants petition for antitrust intervention and directs a hearing, holding the following contentions to be sufficient: (1) that proposed license condition limiting amount of wheeled power would prevent intervenors from obtaining benefits of coordination, and deny the option of generating their own supplemental power supply; (2) that proposed conditions limiting "wheeling" to amount "reasonably accommodated from a functional and technical standpoint" is ambiguous; (3) that proposed conditions fail to specify that charges for transmission shall be in accordance with filed schedules. As to a contention that proposed conditions fail to require the provision of adequate reserves on suitable terms, framing with the particularity required by 10 CFR 2.714(a) is reserved for the hearing board.

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

A licensing board established to rule on an intervention petition is not precluded from expressing its views on the sufficiency of more than one contention, even though it need only find that, for the contention requirement of 10 CFR §2.714(a) to be satisfied, there is one relevant contention stated with reasonable specification and with some basis assigned for it.

MEMORANDUM AND ORDER GRANTING PETITION OF KANSAS ELECTRIC COOPERATIVES, INC., FOR LEAVE TO INTERVENE AND FOR AN ANTITRUST HEARING

Kansas Electric Cooperatives, Inc., a nonprofit association of 37 rural electric cooperatives in the State of Kansas, has petitioned for leave to intervene in this proceeding for the construction of a nuclear power reactor by Kansas Gas and Electric Company and Kansas City Power and Light Company, to be known as Wolf Creek Generating Station, Unit No. 1. The renewed petition, succeeding one which was filed prematurely, seeks an antitrust hearing and the imposition upon the applicants of conditions which would require their agreement to provide the petitioner with satisfactory terms and conditions relating to wheeling, transmission, coordination, reserves, and other aspects of the project. We grant the petition, and direct that such a hearing be held.

Pursuant to Section 105c.(5) of the Atomic Energy Act of 1954, 42 USC 2135(c)(5), the Nuclear Regulatory Commission, as statutory successor to the Atomic Energy Commission, published in the *Federal Register* on December 23, 1974 (39 *FR* 44269) the advice of the Department of Justice concerning the antitrust aspects of the application. The Department of Justice had concluded that an antitrust hearing is not required in this proceeding if certain commitments which had been made by the applicants to the Department were imposed by the Commission as conditions of the license. That *Federal Register* notice specified that any person whose interest might be affected by the Department's antitrust recommendation might within 30 days file a petition pursuant to 10 CFR 2.741 for intervention and for an antitrust hearing. Kansas Electric Cooperatives, Inc., filed a timely petition praying for leave to intervene and for such a hearing.

A petition for intervention and a hearing was also filed by the City of Osawatomie, Kansas. The petition of Osawatomie will be determined by a separate order.

All of the members of Kansas Electric Cooperatives, Inc., except one are engaged only in the distribution of electric power. One of its members, Sunflower Electric Cooperative, Inc., is engaged in the generation and transmission of power.

Kansas Electric Cooperatives, Inc., has been offered, and intends to acquire, an 8% ownership participation in the Wolf Creek project, and the terms and conditions of that participation are in negotiation. Its controversy is with Kansas Gas and Electric Company, which is an investor-owned, integrated electric utility and one of the applicants.

Kansas Gas and Electric Company is the only electric utility generating electric power in its service area (except for Sunflower), and performs practically

all of the transmission of power in its service area of approximately 8,100 square miles in southeastern Kansas with a population of approximately 587,000. It currently supplies the full bulk power requirements of a considerable number of municipal systems and rural electric cooperatives and the partial bulk requirements of others, plus two investor-owned utilities. Kansas City Power and Light Company is also an investor-owned integrated utility engaged in a comparable business. Both are members of and have achieved coordination with the MoKan power pool, consisting of seven companies in Kansas and western Missouri.

As a result of conferences among the applicants, the Department of Justice and Kansas Electric Cooperatives, Inc., the latter has concluded that the applicants are not prepared to offer it participation in nuclear power generation and transmission on terms and conditions which would allow it meaningful access, and that the issuance of a construction permit on the terms proposed by the applicants and the activities under the license would create or maintain, or both, a situation inconsistent with the antitrust laws (see Atomic Energy Act of 1954, Section 105, 42 USC 2135). The contentions of the petitioner Kansas Electric Cooperatives, Inc., have not been phrased in its petition with meticulous regard for the specific requirements of the Commission's regulation concerning petitions for intervention, 10 CFR 2.714. But the Staff's analysis of the petition, acquiesced in by the other parties and considered adequate by us, discloses that the Cooperatives have in substance advanced four contentions:

1. That the proposed license conditions, which would entitle the Cooperatives to have power "wheeled in" (that is, supplied by others than the applicants through the transmission lines of the applicants) only to the extent that the applicants have "wheeled out" a portion of the Cooperatives' share of the power generated by the Wolf Creek project, would force the Cooperatives to buy supplemental power from Kansas Gas and Electric Company, denying them the option of obtaining that power from another utility, and thus preventing them from obtaining economies of scale and other benefits of coordinated development, and also in practice denying them the option of generating their own supplemental power supply;

2. That a provision in the proposed conditions to the effect that wheeling is to be performed to the extent that it "can be reasonably accommodated from a functional and technical standpoint" is ambiguous, and would hinder the Cooperatives' efforts to obtain necessary wheeling;

3. That the proposed conditions fail to require that Kansas Gas and Electric sell adequate reserves to the Cooperatives on suitable terms; and

4. That the proposed conditions fail to specify that charges for the transmission service, to be rendered by the applicants, shall be in accordance with schedules filed with appropriate regulatory authorities.

It is a valid general principle that where there are multiple contentions, a petition for intervention is sufficient if it states at least one relevant contention

with reasonable specification and with some basis assigned for it which satisfied the dictates of Section 2.714(a). At that point the licensing board established to rule on an intervention petition "is justified in granting the petition and thus completing its assigned task—without regard to the adequacy of the other stated contentions." However, such licensing board is not precluded from expressing its views on the sufficiency of other contentions,[1] and we believe that this is the better practice. It is noted parenthetically that the Staff's answer contains an excellent analysis of the issues raised by the petition. It would be helpful if the other contentions had been evaluated to the same extent as No. 1.

Contention No. 1, relating to limitations on the right of the Cooperatives to the use of wheeling and transmission facilities of the applicant, is adequate to state antitrust implications sufficient to require development at an evidentiary hearing. Meaningful access to nuclear generated power on reasonable terms and conditions may well be denied the Cooperatives by limiting transmission to the extent that they have wheeled out a portion of their share of the generated power. If the need for supplemental power, including peaking, intermediate or emergency power, can only be met by purchases from the applicant, this could result in a practical foreclosure of the Cooperatives' options of obtaining bulk power from another utility, or from their own generation facilities. The resulting lack of necessary transmission would preclude access to coordinated development and the efficiencies of economies of scale.

As to Contention No. 2, the proposed conditions require wheeling to be performed to the extent that it "can be reasonably accommodated from a functional and technical standpoint." This phrase is ambiguous and could be subject to unilateral interpretation by the applicants. "Functional" in this context may be a term of art, but in the absence of precise definition in the industry, its potential for detriment to the Cooperatives entitles them to develop this contention at a hearing.

Contention No. 3 relates to the assertion that the proposed conditions fail to require the sale of adequate reserves to the Cooperatives on suitable terms. This may relate to one of the elements normally found in coordination arrangements. However, the petition does not set forth the underlying facts and reasoning with sufficient specificity to permit an evaluation. The question of framing contentions with the particularity required by Section 2.714(a) is properly the function of the licensing board responsible for passing on the merits of the claims.

Contention No. 4 asserts that the proposed conditions fail to specify that charges for transmission and wheeling services shall be in accordance with schedules filed with appropriate regulatory bodies. This omission was never clarified by the applicants, even during oral argument before the board. It is even

[1]Duquesne Light Company, et al. (Beaver Valley Power Station, Unit No. 1), ALAB-109, RAI-73-4, p. 243, April 2, 1943.

more mystifying in view of the inclusion of such a provision in the agreement offered to the other petitioning intervenor, City of Osawatomie, by the Kansas City Power and Light Company. We believe that the Cooperatives are entitled to know in advance all of the dimensions of the proposed agreement, and should be permitted to develop this contention in an appropriate fashion at an evidentiary hearing.

Our comments on the respective contentions are of course without prejudice to the definitive adjudication of their adequacy during the course of the proceeding, and without prejudice to the definition of issues as they may appear from time to time.

It is therefore ORDERED that the petition of Kansas Electric Cooperatives, Inc., for leave to intervene in this proceeding is granted, and that a hearing be held to determine whether the activities under the proposed construction permit would create or maintain a situation inconsistent with the antitrust laws as provided in Subsection 105(c) of the Atomic Energy Act of 1954, 42 USC 2135(c).

THE ATOMIC SAFETY AND
LICENSING BOARD
established to rule on
petitions for intervention

Margaret M. Laurence, Member

Sidney G. Kingsley, Member

Marshall E. Miller, Chairman

Issued at Bethesda, Maryland,
this 27th day of March, 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

CLI-75-4

COMMISSIONERS:
William A. Anders, Chairman
Marcus A. Rowden
Victor Gilinsky

In the Matter of

Docket No. 50-201

NUCLEAR FUEL SERVICES, INC., and
NEW YORK STATE ATOMIC AND SPACE
DEVELOPMENT AUTHORITY

April 17, 1975

(West Valley Reprocessing Plant)

Upon review pursuant to 10 CFR §2.786 of Appeal Board decision (ALAB-263), Commission adopts interpretation of 10 CFR §2.714(a) contrary to that reached by a majority of the Appeal Board, and grants Erie County's petition for intervention notwithstanding its untimeliness. Commission finds that, although the reasons for petitioner's tardiness lack merit, the other factors specified in §2.714(a) tip the balance in favor of intervention.

Appeal Board decision reversed.

RULES OF PRACTICE: NON-TIMELY INTERVENTION PETITIONS

A Board has broad discretion in determining whether a non-timely intervention petition should be granted; in exercising that discretion it should look not only to the reason for the tardiness, but, also to the four factors listed in 10 CFR §2.714(a). Denial of intervention may result where the effect of inexcusable tardiness outweighs favorable findings on some or all of the other factors, or where unfavorable findings on those factors outweigh a showing of good cause for late filing.

RULES OF PRACTICE: NON-TIMELY INTERVENTION PETITIONS

A showing of good cause for the tardiness is not a condition precedent to the consideration of the four factors listed in 10 CFR §2.714(a), but the burden of justifying intervention on the basis of these factors is considerably greater where the non-timely petitioner has failed to show such good cause.

RULES OF PRACTICE: NON-TIMELY INTERVENTION PETITIONS

Allowance of a late intervention need not disrupt established discovery schedules or other preparations for hearing, since a tardy petitioner with no good excuse may be required to take the proceeding as it finds it.

RULES OF PRACTICE: REPRESENTATION

A determination of the extent to which a county petitioner's interest will be represented by existing private parties [10 CFR §2.714(a)(3)], may not turn solely on the similarity of their contentions, since a county presumably has broader interests to protect.

MEMORANDUM AND ORDER

The Atomic Safety and Licensing Appeal Board has affirmed, by a divided vote, the Licensing Board's denial of a petition by Erie County, New York, to intervene in this proceeding. NRCI-75/3 208, ALAB-263. Affirmance of the denial was based solely on the County's failure to file on time without an adequate excuse for its tardiness. Since an important question concerning the proper interpretation of an ambiguous provision of our procedural rules is raised, we decided to review the Appeal Board's decision. For the reasons that follow, we are clarifying the rule, reversing the Board's decision, and granting Erie County's petition, notwithstanding its untimeliness.

The section of our rules in issue here, 10 CFR 2.714(a), provides in pertinent part as follows:

> . . . Nontimely filings will not be entertained absent a determination by the Commission, the presiding officer or the atomic safety and licensing board designated to rule on the petition and/or request that the petitioner has made a substantial showing of good cause for failure to file on time, and with particular reference to the following factors. . . .
>
> (1) The availability of other means whereby the petitioner's interest will be protected.
>
> (2) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.
>
> (3) The extent to which petitioner's interest will be represented by existing parties.
>
> (4) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

The relevant language of Section 2.714(a) is not a model of clarity. Purely semantic analysis supports to some extent either of the divergent results reached

by the Board majority and the dissent. Focusing on the policies underlying the rule, however, and semantics aside, we do not construe Section 2.714(a) as automatically barring inquiry into the purposes which may be served, or hindered, by accepting an untimely petition where, as here, the petitioner has not shown good cause for his tardiness. Rather, the purpose of Section 2.714(a) is to establish appropriate tests for disposition of untimely petitions in which the reasons for the tardiness as well as the four listed factors should be considered, thus giving the Licensing Boards broad discretion in the circumstances of individual cases.

Obviously, an important policy consideration underlying the rule is the public interest in the timely and orderly conduct of our proceedings. As the Commission has recognized, "fairness to all parties. . .and the obligation of administrative agencies to conduct their functions with efficiency and economy, require that Commission adjudications be conducted without unnecessary delays." 10 CFR Part 2, Appendix A. Late petitioners properly have a substantial burden in justifying their tardiness. And the burden of justifying intervention on the basis of the other factors in the rule is considerably greater where the latecomer has no good excuse.

We appreciate the Appeal Board majority's concern that the interpretation of the rule we now adopt may have the effect of reading the "good cause" requirement out of the rule. To obviate that result, we stress that favorable findings on some or even all of the other factors in the rule need not in a given case outweigh the effect of inexcusable tardiness. Conversely, a showing of good cause for a late filing may nevertheless result in a denial of intervention where assessment of the other factors weighs against the petitioner.

We agree that the grounds advanced by Erie County for filing nine months late are without merit. Taking that factor into account, our review of the pleadings in light of the four factors listed in Section 2.714(a) nevertheless leads us—albeit with some reluctance—to accept its petition in this case. We first consider the third factor—"the extent to which petitioner's interest will be represented by existing parties." We share the view of the dissenting member of the Appeal Board that the private intervenors herein advancing contentions substantially identical to those of the County may not effectively represent the County's presumably broader interests. More difficult to assess is the extent to which Erie County's interests may be represented by the two governmental intervenors, the State Attorney General and the New York State Atomic Energy Council. We note, but do not rely upon, representations in a late-filed pleading from the State Attorney General to the effect that the interests of the State and County governments in this proceeding may well diverge. More importantly, the County has raised at least one issue—the safety implications of transporting nuclear materials to the facility site—which the State entities have not specifically addressed. In these circumstances we hesitate to conclude that the County's interests will be adequately represented by the State.

The first factor—"availability of other means whereby the petitioner's interest will be protected"—also weighs in the County's favor. In the present case, as suggested by the Licensing and Appeal Boards, the only "other means" available to the County would be a limited appearance under 10 CFR §2.715. But such an appearance probably would not be an adequate substitute for participation as a party—with a party's attendant procedural rights—in the circumstances of this case.*

The fourth factor specified in the rule—"the extent to which the petitioner's participation will broaden the issues or delay the proceeding"—is, in the circumstances of this case, a particularly weighty consideration. As noted previously, substantially identical issues have been raised by other parties. Moreover, by the Licensing Board's best estimate, the evidentiary hearing will not begin before the fall of 1975. Furthermore, allowance of a late intervention need not disrupt established discovery schedules and other preparations for hearing. A tardy petitioner with no good excuse may be required to take the proceeding as it finds it. For, as stated by the dissenting member of the Appeal Board, "any disadvantage which it might suffer in terms of the opportunity for trial preparation would be entirely of its own making." Accordingly, the Erie County petition to intervene is granted.

It is so ORDERED.

By the Commission.

John C. Hoyle
Assistant Secretary of the Commission

Dated at Washington, D. C.
this 17th day of April, 1975.

*Assessment of the second factor—whether the County's participation "may reasonably be expected to assist in developing a sound record"—is inconclusive in this case. On the one hand, as the Licensing Board noted, the County has not shown any special expertise or access to evidence not available to the admitted parties. On the other hand, the County points to air and water quality monitoring activities by County agencies and a commitment of funds for "very preliminary specialized technical studies of selected aspects of the application."

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

CLI-75-5

COMMISSIONERS:
William A. Anders, Chairman
Marcus A. Rowden
Edward A. Mason
Victor Gilinsky
Richard T. Kennedy

In the Matter of

Docket No. RM-50-2

RULEMAKING HEARING

April 30, 1975

NUMERICAL GUIDES FOR DESIGN OBJECTIVES AND LIMITING CONDITIONS FOR OPERATION TO MEET THE CRITERION "AS LOW AS PRACTICABLE" FOR RADIOACTIVE MATERIAL IN LIGHT-WATER-COOLED NUCLEAR POWER REACTOR EFFLUENTS

Commission adopts quantitative guidelines to assure compliance with the "as low as practicable" requirements of 10 CFR §50.34a and §50.36a, by (1) defining design objectives for, and establishing limiting conditions for operation of, light-water-cooled power reactors to limit radiation doses or dose commitments to individuals in unrestricted areas from (a) liquid effluents, (b) gaseous effluents, and (c) radioactive iodine and particulate emissions, and by (2) imposing a requirement that radwaste systems include all items of reasonably demonstrated technology that, with a favorable cost-benefit ratio, can effect a reduction in the radiation dose to the general population. Commission proposes to conduct a rulemaking hearing to establish appropriate monetary values for the worth of reduction of radiation doses to the population and, in the interim, selects a conservative value for the worth of that reduction (subject to demonstration in particular cases that a lower value should be used).

OPINION OF THE COMMISSION

CHAPTER I
SUMMARY AND STATEMENT OF CONSIDERATIONS

Background

The Nuclear Regulatory Commission[1] herewith announces its decision in the rulemaking proceeding concerning numerical guides for design objectives and limiting conditions for operation to meet the criterion "as low as practicable" for radioactive material in light-water-cooled nuclear power reactor effluents.

On December 3, 1970, the Atomic Energy Commission published in the *Federal Register* (35 *F.R.* 18385), new sections 50.34a and 50.36a in Part 50 of its regulations, specifying design and operating requirements for nuclear power reactors to keep levels of radioactivity in effluents "as low as practicable." The amendments provided qualitative guidance, but not numerical criteria, for determining when design objectives and operations meet the specified requirements. The Commission noted in the Statement of Considerations accompanying the amendments the desirability of developing more definitive guidance. The rule we announce today does that, setting forth criteria which, if met, provide one acceptable method of establishing compliance with the "as low as practicable" requirement of sections 50.34a and 50.36a.

On June 9, 1971, the Atomic Energy Commission published in the *Federal Register* (36 *F.R.* 11113) for public comment proposed amendments to 10 CFR Part 50 which would supplement sections 50.34a and 50.36a with a new Appendix I. The Proposed Appendix provided numerical guides for design objectives and technical specification requirements for limiting conditions for operation for light-water-cooled nuclear power reactors.

A subsequent notice, published on November 30, 1971 (36 *F.R.* 2275), announced a public rulemaking hearing on the proposed amendments. The hearing began on January 20, 1972, before a Hearing Board consisting of Algie A. Wells, Esq., Chairman, Dr. John C. Geyer, and Dr. Walter H. Jordan. The primary participants in the rulemaking hearing included the Commission's Regulatory Staff, a consolidated utility group, the Consolidated National Intervenors, General Electric Company, and the State of Minnesota. In addition, 18 persons or organizations, including the Environmental Protection Agency, made limited appearances.

The hearing was suspended in May of 1972 pending preparation of an Environmental Impact Statement concerning the proposed rulemaking in

[1] The licensing and related regulatory functions of the Atomic Energy Commission have been transferred to this Commission. Energy Reorganization Act of 1974, § 201(f), 88 Stat. 1243.

implementation of the National Environmental Policy Act of 1969. A Draft Environmental Statement was forwarded to the Council on Environmental Quality on January 15, 1973, and circulated for comment to interested Federal agencies and members of the public, including the hearing participants. Notice of public availability of the Statement and an invitation for comment were published in the *Federal Register.* Comments on the Draft Environmental Statement were received, and a Final Environmental Statement was issued on July 26, 1973. In November 1973, the public hearing was resumed for consideration of the Environmental Statement. The evidentiary hearing was concluded on December 6, 1973, concluding statements of position were filed, and the entire record was forwarded to the Commission for decision. The proceeding covered some 25 days of hearings, 4172 pages of hearing transcript, and thousands of pages of prepared written direct testimony and exhibits. Oral arguments were heard by the Atomic Energy Commission on June 6, 1974.

As the record developed during this rulemaking shows, there is a general consensus concerning the need to define "as low as practicable" with numerical criteria. The major issues of controversy involved the feasibility of achieving the proposed numerical criteria and the cost of compliance with and the perceived benefits of the criteria. The Nuclear Regulatory Commission has carefully considered the entire record and the views of those who participated in the rulemaking hearing in reaching the decision announced herein.[2]

It should be emphasized that the Appendix I guides as here adopted by the Commission are not radiation protection standards. The numerical guides of Appendix I which we announce today are a quantitative expression of the meaning of the requirement that radioactive material in effluents released to unrestricted areas from light-water-cooled nuclear power reactors be kept "as low as practicable."[3]

The Commission's radiation protection standards, which are based on recommendations of the Federal Radiation Council (FRC) as approved by the President, are contained in 10 CFR Part 20, "Standards for Protection Against

[2] Some of the parties to this proceeding sent unsolicited letters to individual members of the Commission, expressing views on the subject matter of this rulemaking. These communications, not a part of the hearing record, have been placed in the public document room and served upon all parties in the manner described in 10 CFR 2.780(b), and have not been considered in reaching the decision announced today.

[3] Under the President's Reorganization Plan No. 3 of 1970, the Environmental Protection Agency (EPA) is responsible for establishing generally applicable environmental radiation standards for the protection of the general environment from radioactive materials. The Nuclear Regulatory Commission is responsible for implementation and enforcement of EPA's generally applicable environmental standards. If the design objectives and operating limits established in this decision should prove to be incompatible with any generally applicable standard hereafter established by EPA, these objectives and limits will be modified as necessary.

Radiation," and remain unchanged by this Commission decision.[4] As in the case of parallel recommendations of the National Council on Radiation Protection and Measurements (NCRP) and the International Commission on Radiological Protection (ICRP), these FRC standards which have been previously adopted give appropriate consideration to the overall requirements of health protection and the beneficial use of radiation and atomic energy. The Commission believes that the record clearly indicates that any biological effects that might occur at the low levels of these standards have such low probability of occurrence that they would escape detection by present-day methods of observation and measurement.

The Commission fully subscribes to the general principle that, within established radiation protection guides, radiation exposures to the public should be kept "as low as practicable." This precept has been a central one in the field of radiation protection for many years. The term "as low as practicable" is defined in the Commission's regulations [10 CFR 50.34a(a)] to mean "as low as is practicably achievable taking into account the state of technology, and the economics of improvements in relation to the benefits to the public health and safety and in relation to the utilization of atomic energy in the public interest."

We note that during the pendency of this rulemaking the International Commission on Radiological Protection, in ICRP Publication No. 22, has replaced the phrase "as low as practicable" with "as low as is reasonably achievable" in its recommendation on dose limitation. Its recommendation has also been expanded to identify two specific considerations—economic and social—that are to be taken into account in determining a level of exposure that may be considered "as low as is reasonably achievable." Other considerations, such as ethical ones, are not excluded by this wording and may indeed be considered to be included by the adjective "social." The ICRP has clearly stated that the changed terminology does not reflect a change in the objectives of dose limitation, but rather a choice of language which "more closely describes its intentions." See ICRP Publication 22, paragraphs 6, 7, and 20.

We endorse this attempt to make this basic concept of radiation protection more understandable. We are today directing the Commission's Staff to prepare

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[4] The radiation protection guides established by the FRC for individual members of the public are 500 millirems per year to the total body and bone marrow and 1500 millirems per year to the thyroid and bone. The guide for average dose to the population is 5 rems in 30 years to the gonads (an annual average dose of 170 millirems per person averaged over the population). These guides and recommendations apply to exposures from all sources other than medical procedures and natural background.

The FRC provides no specific radiation protection guides with respect to other organs of the body. The ICRP recommends annual dose limits of 500 millirems to the total body, gonads, and red bone marrow; 3000 millirems to the skin, bone, and thyroid, except 1500 millirems to the thyroid of children up to 16 years of age; and 1500 millirems to other single organs.

and issue for public comment a proposed rule that substitutes the currently accepted phrasing—"as low as is reasonably achievable"—for the older, less precise terminology in the many places throughout our regulations and regulatory guides where it appears. The numerical values of Appendix I quantifying "as low as practicable", will not, of course, be affected by the forthcoming change in terminology.

The principal changes from the proposed amendments published in the *Federal Register* on June 9, 1971, are as follows:

1. Liquid Effluents

The design objectives in the proposed rule for radioactive material in liquid effluents were based on: (a) an annual release of not more than 5 curies, except tritium, from each reactor, (b) specified concentration limits on tritium and other radioactive materials released to the environment, and (c) a provision for increasing or decreasing the design-objective quantities and concentrations for specific sites subject to keeping annual doses to the total body or any organ of an individual in an unrestricted area to not more than 5 millirems for all reactors on a site. The design objective in Appendix I as adopted limits the total radioactivity released from each light-water-cooled nuclear power reactor to a level that limits the annual dose or dose commitment from liquid effluents from that reactor for any individual in an unrestricted area from all pathways of exposure to not more than 3 millirems to the total body and 10 millirems to any organ.

The adopted design-objective guides contain no numerically specified limits upon quantities of radioactive material to be released since the record shows that such limits have little if any independent significance. Protection of future users of the near environs of the reactor is provided by the additional requirement that all augments with a favorable cost-benefit balance be included in the radwaste system and by the provision that the estimation of exposure be made with respect to such potential land and water use and food pathways as could actually exist during the term of plant operation.

2. Gaseous Effluents

The principal difference in the design objective in the Appendix adopted by the Commission dealing with external dose from radioactive material in gaseous effluents is the separate treatment of total-body dose and skin dose. The proposed design objective limited both the annual total-body and the annual skin dose from all reactors on a site to 5 millirems, whereas the new design objective incorporates an annual total-body dose limit from gaseous effluents of 5 millirems per light-water reactor and increases the annual dose limit to the skin to not more than 15 millirems per light-water reactor. The design-objective annual dose to the skin has been increased from 5 millirems to 15 millirems on

the basis of evidence in the Final Environmental Statement and the hearing record showing that it is not technically practicable to design and operate a light-water-cooled nuclear power reactor with a limit on the annual skin dose from beta radiation of not more than 5 millirems.[5] It is noted by way of comparison that an annual dose to the skin of 15 millirems is one-half of one percent of the radiation dose limit for a member of the public recommended by the International Commission on Radiological Protection.

3. Radioactive Iodine and Particulate Matter

The proposed design objective for radioactive iodine and radioactive material in particulate form released in gaseous effluents was expressed as a limit on the average concentrations of radioiodines and radioactive material in particulate form at or beyond the site boundary. The proposed concentration values were designed to limit the annual dose to the thyroid or other organs from all reactors on a site to not more than 5 millirems. The design objective in the new Appendix I is expressed as the annual quantity of radioactive iodine and radioactive material released which limits the annual dose or dose commitment to any organ, including the thyroid, of any individual in an unrestricted area from all pathways of exposure to not more than 15 millirems per year per light-water-cooled nuclear power reactor. In determining the annual dose or dose commitment, the applicant or licensee may evaluate the portion due to intake of radioactive material via the food pathways at the locations where the food pathways actually exist. The design-objective annual dose for radioactive iodine has been increased from 5 to 15 millirems on the basis of evidence developed in the hearing which showed that the previous design-objective annual dose of 5 millirems per year for doses to the thyroid from the milk pathway was not practicable.

4. Cost-Benefit Requirements

In addition to the numerical design-objective guides described in paragraphs 1, 2, and 3 above, our decision requires that the applicant include in the radwaste systems all items of reasonably demonstrated technology that, when added to the system sequentially and in order of diminishing cost-benefit return,

[5] The dose rates specified in the rule of 10 millirads per year for gamma radiation and 20 millirads per year for beta radiation are to be based on calculated annual air doses. These calculated annual air doses would normally be considered to meet the objective as limiting doses to individuals in unrestricted areas to not more than 5 millirems to the total body or 15 millirems to the skin. Provisions are made to increase or decrease the annual dose rate if, for a particular site, there are special circumstances where the specified dose rates should be adjusted to limit the exposure of an individual in an unrestricted area to 5 millirems total body exposure or 15 millirems to the skin.

can with a favorable cost-benefit ratio effect reduction in dose to the population reasonably expected to be within 50 miles of the reactor. The definition of as low as practicable [10 CFR 50.34a(a)] includes consideration of "...the economics of improvements in relation to the benefits to the public health and safety. ..." We find support in the record for the application of a cost-benefit analysis as a part of the process for determination of the radwaste systems to be used. Such a cost-benefit analysis requires that both the costs of and the benefits from reduction in dose levels to the population be expressed in commensurate units, and it seems sound that these commensurate units be units of money. Accordingly, to accomplish the cost-benefit balancing, it is necessary that the worth of the decrease of a man-rem and man-thyroid-rem or some essentially equivalent quantities in dose to the population be assigned monetary values.

The record, in our view, does not provide an adequate basis to choose a specific dollar value for the worth of decreasing the population dose by a man-rem or a man-thyroid-rem. Published values for the worth of a man-rem were shown in the record to range from about $10 to $980. No similar values for worth of a man-thyroid-rem are presented. One of the hearing participants chose $1000 per man-rem and $333 per man-thyroid-rem. This choice for worth of a man-rem simply reflected a value slightly more conservative than the highest previously published value and implied no independent assessment of the worth of either entity. We, therefore, recognize that there is no consensus in this record or otherwise regarding proper value for worth of a man-rem and even less information upon which to base the choice of a proper value for worth of a man-thyroid-rem.

Moreover, we also recognize that selection of such values is difficult since it involves, in addition to actuarial considerations that are commonly reduced to financial terms, aesthetic, moral, and human values that are difficult to quantify. At the same time we believe that meaningful cost-benefit balances are an essential part of the considerations of the as low as practicable concept for control of insult to the population from radioactive effluents and, for that matter, from other pollutants.

We propose, therefore, at the earliest practicable date to conduct a rulemaking hearing to establish appropriate monetary values for the worth of reduction of radiation doses to the population. We are aware that the National Academy of Sciences–National Research Council Advisory Committee on Biological Effects of Ionizing Radiation is currently studying and developing methodologies for benefit-risk-cost analysis for activities involving radiation exposure. It is possible that information on monetary values for the worth of reduction of radiation dose, as well as useful methodology, may be provided by this study. When such appropriate values (or some other equivalent quantified, and as yet unspecified, criteria) are available, we shall consider them for incorporation in Appendix I.

Meanwhile, and purely as an interim measure, we believe that we can accept the conservative value of $1000 per total-body man-rem for these cost-benefit evaluations. Since we realize that the ultimately accepted value may well prove to be less than this, we should leave it open to demonstration in individual cases that a lower figure should be used if the applicant chooses to and can make that demonstration. It is also clear to us that arguments can be made that the worth of reduction in thyroid dosage should have a smaller value than that for a total-body man-rem. Since the record can offer no clear guidance in this regard, we have accepted, purely as an interim measure, $1000 per man-thyroid-rem as the value to be used in the cost-benefit evaluations. This figure is subject to individual case demonstration of a lower value, as indicated above, since it may well be that the ultimately accepted value will be lower.

In summary, we have decided that, pending completion of the further rulemaking to establish better values (or suitable equivalent criteria), the cost-benefit balances required by Section II, paragraph D of Appendix I, shall be accomplished using the value of $1000 per total-body man-rem and $1000 per man-thyroid-rem, or such lesser values as may be demonstrated by the applicant to be suitable in a particular case.

We intend that radwaste augments necessary to satisfy the limits (of Section II, paragraphs A, B, and C of Appendix I) on maximum dosages to individuals will be required in all cases. Additional radwaste augments will be required when, and only when, it can be shown that, where each is added sequentially and in order of diminishing cost-benefit return, the sum of its annualized cost of installation, its annual operating cost, and a reasonable allowance for its maintenance is less than the annual worth of the decreases in total-body man-rem and in man-thyroid-rem which the augment can achieve for the population within 50 miles of the reactor.

5. Per Site vs. Per Reactor

From the foregoing it is clear that the Commission's policy is to minimize the radiation exposure of human beings from the effluents of light-water-cooled nuclear power reactors. We have chosen to express the design objectives on a per light-water-cooled nuclear power reactor basis rather than on a site basis, as was originally proposed. While no site limits are being adopted, it is expected that the dose commitment from multi light-water-cooled reactor sites should be less than the product of the number of reactors proposed for a site and the per-reactor design-objective guides because there are economies of scale due to the use of common radwaste systems for multi-reactor sites which are capable of reducing exposures. Moreover, we note that the matter of overall environmental impact of nuclear sites is a topic to be specifically addressed in the energy-center study mandated by the Energy Reorganization Act of 1974.

6. Licensee and Commission Action

Revisions have been made in the guides for limiting conditions for operation with respect to when appropriate action must be taken to reduce release rates of radioactive material. The proposed action levels provided that, if rates of release of quantities and concentrations in effluents actually experienced over any calendar quarter indicate that annual rates of release were likely to exceed 2 times the design objectives, the licensee should take corrective action. If such annual rates were likely to exceed a range of 4 to 8 times the design objectives, the Commission would take appropriate action to ensure that the release rates were reduced.

The provisions adopted require the licensee to initiate action if the average dose rate offsite during any calendar quarter from materials discharged to the atmosphere exceeds 10 millirems whole body per year or 30 millirems to the skin and any organ per year, or if the average dose rate offsite during any calendar quarter from liquid effluents exceeds 6 millirems whole body per year or 20 millirems to the skin and any organ per year.

Existing Commission regulations (10 CFR 50.36a) have recognized the need for licensees to be permitted flexibility of operation compatible with considerations of health and safety to ensure that the public is provided a dependable source of power even under unusual operating conditions that may temporarily result in releases higher than the numerical guides for design objectives. Some flexibility of operation is believed to be essential and warranted in view of the restrictive nature of the Appendix I guides and the fact that, even with this flexibility, it can be ensured that the average population exposure will still be a small fraction of doses from natural background radiation. The Commission notes, however, that, in using this operational flexibility under temporary or short-term unusual operating conditions, the licensee must continue to exert his best efforts to keep levels of radioactive material in effluents within the numerical guides for design objectives.

In order to provide assurance that releases of radioactive materials are known, the Commission has expanded the surveillance and monitoring program beyond current requirements for licensees to report on the quantities of the principal radionuclides released to unrestricted areas. It is expected that this expanded monitoring program will be used by licensees as a basis for initiating prompt and effective corrective action toward ensuring that the actual offsite exposures per reactor are compatible with the design objectives as adopted.

These guides will continue to provide operating flexibility and at the same time ensure a positive system of control by a graded scale of action first by the licensee and second by the Commission, if the need arises, to reduce the release of radioactive material should the rates of release actually experienced substantially exceed the design objectives.

7. Implementation

The proposed Appendix I was silent on the method for implementation of the numerical guides. The Commission believes, however, that Appendix I should guide the Commission Staff and other interested persons in the use of appropriate calculational procedures for applying the numerical guides for design objectives. Consequently, the provision adopted states that compliance with the guides on design objectives shall be demonstrated by calculational procedures based on models and data that will not substantially underestimate the actual exposure of an individual through appropriate pathways, all uncertainties being considered together.

Quantitative measurement of radioactive materials released in effluents from licensed light-water-cooled nuclear power reactors is required by 10 CFR 50.36a. This requirement is made more specific by Appendix I and reflects the desirability of the use of the best available experimental data as well as calculational models in order to achieve increased accuracy and realism. Strong incentives already exist for improving the calculational models used in establishing design objectives in view of the economic penalty associated with needless overdesign for conservatism. Actual measurements and surveillance programs can provide data for improving these models. It is recognized, however, that measurements of environmental exposures and quantities of radioactive materials in the environs are complicated by the very low concentrations that are encountered, compared to background, and by the fact that there are a number of variables in both time and space that affect concentration. Thus, the correlation of the best measurements with the best calculations is tedious and difficult. However, since calculational procedures must be employed in implementing the design-objective guides of Appendix I, the Commission has adopted an implementation policy that encourages the improvement of calculation models and the use of the best data available.

The foregoing "Summary and Statement of Considerations" has briefly summarized the technical context of the issues presented and outlined the changes made in Appendix I from the form in which it was originally proposed. The text of Appendix I as adopted follows in Chapter II of this Opinion. The three following chapters of text set forth the record bases for the changes in greatly expanded detail. These supplemental explanatory chapters (III through V), because of their length, will not be published in the *Federal Register* with the text of Appendix I and the Summary and Statement of Considerations, but will be published in the April issue of Nuclear Regulatory Commission Issuances.[6] Single copies of this volume may be purchased at a cost of $4.00 from the USERDA Technical Information Center, P.O. Box 62, Oak Ridge,

[6] Copies of the complete five-chapter Opinion of the Commission have been filed with the original document submitted for publication in the *Federal Register*, and may be examined by members of the public at the Offices of the *Federal Register*.

Tennessee 37830. Copies of the complete Opinion are also available for inspection and copying in the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C. 20555.

CHAPTER II
APPENDIX I

Pursuant to the Atomic Energy Act of 1954, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50, are published as a document subject to codification to be effective on June 4, 1975.

1. Section 50.34a of 10 CFR Part 50 is amended by adding the following sentence to the end of paragraph (a):

(a) . . . The guides set out in Appendix I provide numerical guidance on design objectives for light-water-cooled nuclear power reactors to meet the requirement that radioactive material in effluents released to unrestricted areas be kept as low as practicable. These numerical guides for design objectives and limiting conditions for operation are not to be construed as radiation protection standards.

* * * * *

2. Section 50.36a of 10 CFR Part 50 is amended by adding the following sentence at the end of paragraph (b):

(b) . . . The guides set out in Appendix I provide numerical guidance on limiting conditions for operation for light-water-cooled nuclear power reactors to meet the requirement that radioactive materials in effluents released to unrestricted areas be kept as low as practicable.

3. A new Appendix I is added to 10 CFR Part 50 to read as follows:

APPENDIX I—NUMERICAL GUIDES FOR DESIGN OBJECTIVES AND LIMITING CONDITIONS FOR OPERATION TO MEET THE CRITERION "AS LOW AS PRACTICABLE" FOR RADIOACTIVE MATERIAL IN LIGHT-WATER-COOLED NUCLEAR POWER REACTOR EFFLUENTS.

SECTION I. INTRODUCTION

Section 50.34a provides that an application for a permit to construct a nuclear power reactor shall include a description of the preliminary design of equipment to be installed to maintain control over radioactive materials in gaseous and liquid effluents produced during normal reactor operations, including expected operational occurrences. In the case of an application filed

on or after January 2, 1971, the application must also identify the design objectives, and the means to be employed, for keeping levels of radioactive material in effluents to unrestricted areas as low as practicable.

Section 50.36a contains provisions designed to assure that releases of radioactive material from nuclear power reactors to unrestricted areas during normal reactor operations, including expected operational occurrences, are kept as low as practicable.

This Appendix provides numerical guides for design objectives and limiting conditions for operation to assist applicants for, and holders of, licenses for light-water-cooled nuclear power reactors in meeting the requirements of Sections 50.34a and 50.36a that radioactive material in effluents released from these facilities to unrestricted areas be kept as low as practicable. Design objectives and limiting conditions for operation conforming to the guidelines of this Appendix shall be deemed a conclusive showing of compliance with the "as low as practicable" requirements of 10 CFR sections 50.34a and 50.36a. Design objectives and limiting conditions for operation differing from the guidelines may also be used, subject to a case-by-case showing of a sufficient basis for the findings of "as low as practicable" required by sections 50.34a and 50.36a. The guides presented in this Appendix are appropriate only for light-water-cooled nuclear power reactors and not for other types of nuclear facilities.

SECTION II. GUIDES ON DESIGN OBJECTIVES FOR LIGHT-WATER-COOLED NUCLEAR POWER REACTORS LICENSED UNDER 10 CFR PART 50

The guides on design objectives set forth in this section may be used by an applicant for a permit to construct a light-water-cooled nuclear power reactor as guidance in meeting the requirements of 50.34a(a). The applicant shall provide reasonable assurance that the following design objectives will be met.

A. The calculated annual total quantity of all radioactive material above background[1] to be released from each light-water-cooled nuclear power reactor to unrestricted areas will not result in an estimated annual dose or dose commitment from liquid effluents for any individual in an unrestricted area from all pathways of exposure in excess of 3 millirems to the total body or 10 millirems to any organ.

B. 1. The calculated annual total quantity of all radioactive material above background to be released from each light-water-cooled nuclear power reactor to the atmosphere will not result in an estimated annual air dose from gaseous

[1] Here and elsewhere in this Appendix background means radioactive materials in the environment and in the effluents from light-water-cooled power reactors not generated in, or attributable to, the reactors of which specific account is required in determining design objectives.

effluents at any location near ground level which could be occupied by individuals in unrestricted areas in excess of 10 millirads for gamma radiation or 20 millirads for beta radiation.

2. Notwithstanding the guidance of paragraph B.1: (a) The Commission may specify, as guidance on design objectives, a lower quantity of radioactive material above background to be released to the atmosphere if it appears that the use of the design objectives in paragraph B.1 is likely to result in an estimated annual external dose from gaseous effluents to any individual in an unrestricted area in excess of 5 millirems to the total body; and

(b) Design objectives based upon a higher quantity of radioactive material above background to be released to the atmosphere than the quantity specified in paragraph B.1 will be deemed to meet the requirements for keeping levels of radioactive material in gaseous effluents as low as practicable if the applicant provides reasonable assurance that the proposed higher quantity will not result in an estimated annual external dose from gaseous effluents to any individual in unrestricted areas in excess of 5 millirems to the total body or 15 millirems to the skin.

C. The calculated annual total quantity of all radioactive iodine and radioactive material in particulate form above background to be released from each light-water-cooled nuclear power reactor in effluents to the atmosphere will not result in an estimated annual dose or dose commitment from such radioactive iodine and radioactive material in particulate form for any individual in an unrestricted area from all pathways of exposure in excess of 15 millirems to any organ.

D. In addition to the provisions of paragraphs A, B, and C above, the applicant shall include in the radwaste system all items of reasonably demonstrated technology that, when added to the system sequentially and in order of diminishing cost-benefit return, can for a favorable cost-benefit ratio effect reductions in dose to the population reasonably expected to be within 50 miles of the reactor. As an interim measure and until establishment and adoption of better values (or other appropriate criteria), the values $1000 per total body man-rem and $1000 per man-thyroid-rem (or such lesser values as may be demonstrated to be suitable in a particular case) shall be used in this cost-benefit analysis.

SECTION III. IMPLEMENTATION

A. 1. Conformity with the guides on design objectives of Section II shall be demonstrated by calculational procedures based upon models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated, all uncertainties being considered together. Account shall be taken of the cumulative effect of all sources and pathways

within the plant contributing to the particular type of effluent being considered. For determination of design objectives in accordance with the guides of Section II, the estimation of exposure shall be made with respect to such potential land and water usage and food pathways as could actually exist during the term of plant operation, provided that, if the requirements of paragraph B of Section III are fulfilled, the applicant shall be deemed to have complied with the requirements of paragraph C of Section II with respect to radioactive iodine if estimations of exposure are made on the basis of such food pathways and individual receptors as actually exist at the time the plant is licensed.

2. The characteristics attributed to a hypothetical receptor for the purpose of estimating internal dose commitment shall take into account reasonable deviations of individual habits from the average. The applicant may take account of any real phenomenon or factors actually affecting the estimate of radiation exposure, including the characteristics of the plant, modes of discharge of radioactive materials, physical processes tending to attenuate the quantity of radioactive material to which an individual would be exposed, and the effects of averaging exposures over times during which determining factors may fluctuate.

B. If the applicant determines design objectives with respect to radioactive iodine on the basis of existing conditions and if potential changes in land and water usage and food pathways could result in exposures in excess of the guideline values of paragraph C of Section II, the applicant shall provide reasonable assurance that a monitoring and surveillance program will be performed to determine:

(1) The quantities of radioactive iodine actually released to the atmosphere and deposited relative to those estimated in the determination of design objectives;

(2) Whether changes in land and water usage and food pathways which would result in individual exposures greater than originally estimated have occurred; and

(3) The content of radioactive iodine and foods involved in the changes, if and when they occur.

SECTION IV. GUIDES ON TECHNICAL SPECIFICATIONS FOR LIMITING CONDITIONS FOR OPERATION FOR LIGHT-WATER-COOLED NUCLEAR POWER REACTORS LICENSED UNDER 10 CFR PART 50

The guides on limiting conditions for operation for light-water-cooled nuclear power reactors set forth below may be used by an applicant for a license to operate a light-water-cooled nuclear power reactor as guidance in developing technical specifications under Section 50.36a(a) to keep levels of radioactive materials in effluents to unrestricted areas as low as practicable.

Section 50.36a(b) provides that licensees shall be guided by certain considerations in establishing and implementing operating procedures specified in technical specifications that take into account the need for operating flexibility and at the same time assure that the licensee will exert his best effort to keep levels of radioactive material in effluents as low as practicable. The guidance set forth below provides additional and more specific guidance to licensees in this respect.

Through the use of the guides set forth in this Section it is expected that the annual releases of radioactive material in effluents from light-water-cooled nuclear power reactors can generally be maintained within the levels set forth as numerical guides for design objectives in Section II.

At the same time, the licensee is permitted the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such numerical guides for design objectives but still within levels that assure that the average population exposure is equivalent to small fractions of doses from natural background radiation. It is expected that in using this operational flexibility under unusual operating conditions, the licensee will exert his best efforts to keep levels of radioactive material in effluents within the numerical guides for design objectives.

A. If the quantity of radioactive material actually released in effluents to unrestricted areas from a light-water-cooled nuclear power reactor during any calendar quarter is such that the resulting radiation exposure, calculated on the same basis as the respective design objective exposure, would exceed one-half the design objective annual exposure derived pursuant to Sections II and III, the licensee shall:[2]

1. Make an investigation to identify the causes for such release rates;
2. Define and initiate a program of corrective action; and
3. Report these actions to the Commission within 30 days from the end of the quarter during which the release occurred.

B. The licensee shall establish an appropriate surveillance and monitoring program to:

1. Provide data on quantities of radioactive material released in liquid and gaseous effluents to assure that the provisions of paragraph A of this section are met;

2. Provide data on measurable levels of radiation and radioactive materials in the environment to evaluate the relationship between quantities of radioactive

[2] Section 50.36a(2) requires the licensee to submit certain reports to the Commission with regard to the quantities of the principal radionuclides released to unrestricted areas. It also provides that, on the basis of such reports and any additional information the Commission may obtain from the licensee and others, the Commission may from time to time require the licensee to take such action as the Commission deems appropriate.

material released in effluents and resultant radiation doses to individuals from principal pathways of exposure; and

3. Identify changes in the use of unrestricted areas (*e.g.*, for agricultural purposes) to permit modifications in monitoring programs for evaluating doses to individuals from principal pathways of exposure.

C. If the data developed in the surveillance and monitoring program described in paragraph B of this section and in paragraph B of Section III or from other monitoring programs show that the relationship between the quantities of radioactive material released in liquid and gaseous effluents and the dose to individuals in unrestricted areas is significantly different from that assumed in the calculations used to determine design objectives pursuant to Sections II and III, the Commission may modify the quantities in the technical specifications defining the limiting conditions for operation in a license authorizing operation of a light-water-cooled nuclear power reactor.

SECTION V. EFFECTIVE DATES

A. The guides for limiting conditions for operation set forth in this Appendix shall be applicable in any case in which an application was filed on or after January 2, 1971, for a permit to construct a light-water-cooled nuclear power reactor.

B. For each light-water-cooled nuclear power reactor constructed pursuant to a permit for which application was filed prior to January 2, 1971, the holder of the permit or a license authorizing operation of the reactor shall, within a period of twelve months from June 4, 1975, file with the Commission:

1. Such information as is necessary to evaluate the means employed for keeping levels of radioactivity in effluents to unrestricted areas as low as practicable, including all such information as is required by Section 50.34a(b) & (c) not already contained in his application; and

2. Plans and proposed technical specifications developed for the purpose of keeping releases of radioactive materials to unrestricted areas during normal reactor operations, including expected operational occurrences, as low as practicable.

CHAPTER III
GUIDES ON DESIGN OBJECTIVES

Section 50.34a of 10 CFR Part 50 contains provisions to ensure that releases of radioactive material from nuclear power reactors to unrestricted areas during normal reactor operations, including expected operational occurrences, are kept as low as practicable. The Appendix I that we adopt provides specific guidance to licensees in this respect.

A. The Rule

Section II of Appendix I defines design objectives for effluents from light-water-cooled power reactors. When used by an applicant for a permit to construct a light-water-cooled power reactor, these guides assure compliance with the requirements of Section 50.34a of 10 CFR Part 50. Four guides provide this assurance: limits are set upon radiation doses or dose commitments to individuals in unrestricted areas from radioactive materials (1) in liquid effluents, (2) in gaseous effluents, and (3) as radioiodine and particulate emissions and (4) a requirement is imposed that the radwaste systems include all items of reasonably demonstrated technology that for a favorable cost-benefit ratio can effect a reduction in the radiation dose to the general population.

The total quantity of all radioactive material above background to be released each year from each light-water-cooled nuclear power reactor to unrestricted areas shall not result in an estimated annual dose or dose commitment from liquid effluents for any individual in unrestricted areas in excess of 3 millirems to the total body or 10 millirems to any organ.

The calculated quantity of all radioactive material above background to be released to the atmosphere annually from each light-water-cooled nuclear reactor shall not result in an estimated annual air dose from gaseous effluents in excess of 10 millirads for gamma radiation and 20 millirads for beta radiation at any location near ground level which could be occupied by individuals in unrestricted areas.

The Commission may specify a smaller quantity of radioactive material to be released to the atmosphere if such smaller quantity appears necessary to prevent an annual external total-body dose from gaseous effluents in excess of 5 millirems to any individual in an unrestricted area. Conversely, if the applicant can provide reasonable assurance that a larger quantity of emitted radioactivity will not result in an estimated annual external dose from gaseous effluents to any individual in unrestricted areas in excess of 5 millirems to the total body or 15 millirems to the skin, such larger quantity of emitted radioactivity may be deemed to meet the requirements of "as low as practicable."

The calculated annual total quantity of all radioactive iodine and radioactive material in particulate form above background to be released to the atmosphere from each light-water-cooled nuclear power reactor in effluents to the atmosphere shall not result in an estimated annual dose or dose commitment from such radioactive iodine and radioactive material in particulate form from all pathways of exposure for any individual in unrestricted areas in excess of 15 millirems to any organ. As described in more detail in Chapter V, that portion of the dose or dose commitment due to intake of radioactive material through food pathways may be evaluated at the locations where the food pathways actually exist.

In addition to these limits on liquid, gaseous, and radioiodine and particulate effluents, the radwaste system of each light-water-cooled nuclear power reactor shall include all equipment items of reasonably demonstrated technology which can for a favorable cost-benefit ratio effect a reduction in dose to the population reasonably expected to be within 50 miles of the reactor. As an interim measure and until establishment and adoption of better values (or other appropriate criteria), the values $1000 per total body man-rem and $1000 per man-thyroid-rem (or such lesser values as may be demonstrated to be suitable in a particular case) shall be accepted for use in this cost-benefit analysis.

We believe these requirements ensure that radiation doses to near neighbors of light-water-cooled nuclear reactors will be limited to a small fraction of the doses permitted by the Federal Radiation Protection Guides and will be well within the variation in natural background radiation levels. At the same time, radiation doses to members of the population at large will be held to very low values.

B. The Considerations

Adoption of these design objectives for effluents from light-water-cooled nuclear power reactors required that we make decisions on a variety of questions that, as the hearing record shows, were contested strongly by the several hearing participants. We describe these contesting views, discuss our assessment of the record, and report our resolution under individual headings below.

1. Shall Quantity and Concentration Limits Be Included in Addition to Dose Limits?

The hearing record shows an almost complete consensus that the basic purpose of the design-objective values is the limitation of radiation-dose levels to off-site members of the public. However, in early stages of the hearing, the Regulatory Staff contended that these dose levels should be limited by placing limits on the quantities and concentrations of radioactive materials in effluents from light-water-cooled nuclear power plants.[1,2]

The Regulatory Staff modified this position during the course of the hearing. The version of Appendix I presented in the Staff's concluding statement[3] did not specify concentration limits on tritium and other radioactive materials released to the environment, but it did include, in addition to limitations on doses to any individual in an unrestricted area, limits on the quantity of

[1] Regulatory Staff, Exhibit 1, Tab. 1, pp. 13-19.
[2] Tr., pp. 25-26.
[3] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974.

radioactive material (except tritium and dissolved gases) in liquid effluents and on the quantity of iodine that could be released.

The Regulatory Staff's final position, i.e., that quantity limits, in addition to dose limits, should be required, was intended to remove the possibility that future land-use patterns in the neighborhood of reactor sites might be prejudiced. The Staff argued that dose limits alone could permit releases of excessive quantities of radionuclides at sites where the environs were unpopulated at the time the reactor was built; such releases might preclude future use of these environs.[4,5]

The General Electric Company (GE) argued throughout the hearing[6-9] that specification of quantities (and concentrations) of radioactive materials released in effluents is unnecessary in view of the primacy of the dose limitation. They insisted that such quantity limits protect no public interest and provide no significant saving of calculational effort in demonstrating compliance with dose limits.[7] And they argued[9] that quantity limits on radioactive materials in liquid effluents would jeopardize the advantages that a dose formulation alone would provide, namely, an "as low as practicable" (ALAP) regulation that encourages the applicant's choice of a favorable site.

The Consolidated Utility Group (CU) also argued[10,11] consistently that quantity and concentration limits be omitted from Appendix I. They took the position[10] that, though dose should be the primary basis for numerical guidance on ALAP, they had no quarrel with the principle that quantity limits on releases from specific plants might be needed. They insisted,[10] however, that such quantity limits should not be incorporated in the rule and thereby be standardized for all light-water-cooled nuclear power plants without regard to the environmental factors and potential pathways associated with a particular site. Instead, they strongly endorsed inclusion in the technical specifications of plant operating licenses of individual quantity limits set for each plant so as to achieve the dose objectives of Appendix I on the basis of actual site conditions and actual exposure pathways.

Both GE[12] and CU[13] argued strongly against the Regulatory Staff's proposed limit[3] of 1 curie of iodine-131 per reactor. Both argued that the

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[4] Ibid., pp. 50-53.
[5] Tr., pp. 343-344.
[6] General Electric, Exhibit 1, Mar. 17, 1972, pp. 7-13.
[7] Tr., pp. 1435-36.
[8] General Electric, Closing Statement, Jan. 21, 1974, p. 13.
[9] General Electric, Reply, Mar. 14, 1974, pp. 43-48.
[10] Consolidated Utility Group, Statement of Position, Jan. 19, 1974, pp. 51-52.
[11] Consolidated Utility Group, Reply, Mar. 7, 1974, p. 17.
[12] General Electric, Reply, Mar. 17, 1974, p. 46.
[13] Consolidated Utility Group, Reply, Mar. 7, 1974, p. 13.

proposal had no foundation in the record and that it was based solely on the belief that without such a quantity limit licensees would build and operate reactors which did not use readily available technology and which would, consequently, release large quantities of radioiodine at sites where no milk pathways exist within miles of the reactor. Both CU and GE insisted that such an eventuality was not a realistic one.

The propriety of dose limits rather than quantity limits was strongly supported by Lauriston Taylor,[14,15] on behalf of the National Council on Radiation Protection, by Merril Eisenbud,[16] who made a limited appearance on behalf of the Atomic Industrial Forum, and by R. M. Hartman,[17] who made a limited appearance on behalf of Ebasco Services, Incorporated. Dr. Edward P. Radford,[18] who testified on behalf of the Consolidated National Intervenors, also endorsed this position. In addition, limited participant Andrew P. Hull[19] testified to his belief that the specification of release and concentration limits, over and above an overall exposure limit, is unwarranted and in many cases would lead to significant expenditures for protection against nonexistent or completely inconsequential risks.

The State of Minnesota, on the other hand, consistently argued[20-22] that quantities and concentrations of emitted radioactive material should be minimized. Although it is clear that Minnesota's objective is the protection of individuals, and especially those individuals near nuclear facilities, the language recommended in its final statement[23] suggests that Minnesota would give primary attention to quantities and concentrations of radioactive materials released.

The overriding purpose of Appendix I is to establish limits on radiation doses to people. Whether additional limits on quantities of emitted radioactive materials should be included is a more complex question.

We agree that the Regulatory Staff was correct in recommending removal of concentration limits for radioactive materials in liquid effluents from its proposed Appendix I. Since, however, many of the very low doses of Appendix I are not in themselves subject to accurate measurement, the quantities and

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[14] Tr., pp. 1737-38.

[15] Tr., pp. 2055-56.

[16] Tr., p. 88.

[17] Tr., pp. 109-116.

[18] National Intervenors, Exhibit 3, p. 2.

[19] Andrew P. Hull (Limited Participant), Final Statement of Position, Feb. 11, 1974, p. 4.

[20] Tr., pp. 1778-79.

[21] State of Minnesota, Final Statement of Position, Feb. 1, 1974.

[22] Oral Argument, Tr., pp. 159-160.

[23] State of Minnesota, Final Statement of Position, Feb. 1, 1974, pp. 21-22.

concentrations of the radioactive materials must be measured at the point of discharge, and doses must be inferred by calculations from these measurements. This fact affords a basis for an argument for inclusion in Appendix I of limits on such quantities.

Not all the arguments against inclusion of such limits are persuasive. We are not impressed, for example, by the GE[7] claim that guides containing quantity limits will lead to substantial misunderstanding and confusion regarding compliance with effluent-emission criteria.

We do find persuasive, however, the arguments advanced by GE[9] and CU[10] that the imposition of quantity limits in addition to dose limits could jeopardize the advantages that dose limitations alone would provide and might preclude a regulation which is fitted to the particular characteristics of individual plants and sites and which encourages the applicant's choice of a favorable site. It is clear that the Regulatory Staff recognized some validity in this argument when it indicated[1] that the specified quantities and concentrations are substantially more conservative than would be required to meet the dose-limiting criteria for many sites.

We have, accordingly, adopted an Appendix I that specifies neither quantity nor concentration limits for the effluents from light-water-cooled nuclear power plants. As recommended by CU,[10] it seems reasonable to us that limits on quantities of emitted radioactive materials compatible with dose limits and the characteristics of specific sites might be incorporated in the technical specifications of the individual plant operating license.

Though we do not include quantity limits in Appendix I, we do agree with the Regulatory Staff argument[3] that it is inadequate to base parameters on uses of the environment only at the time the reactor is designed and constructed. We certainly wish to ensure that the rule cannot result in approval of designs of radwaste systems that do not use the rudimentary, readily available technology to reduce releases. The record does not warrant the inference that the nuclear industry has any intention of doing this, and we note that both GE[12] and CU[13] declare that no such actions will be taken. We consider it plain, however, that our public responsibilities cannot be satisfied by an Appendix I that depends for its efficacy upon the continuing good intentions of those subject to regulation.

Sections III and IV of Appendix I require that the applicant determine whether changes in land and water use and in food pathways occur during the reactor lifetime so as to permit such modifications as may be appropriate in surveillance and monitoring programs or in technical specifications defining limiting conditions for operation. This is elaborated under implementation in Chapter V below. Accordingly, although we have not included quantity limits, we believe that by these means and by inclusion of the requirement that all augments with a favorable cost-benefit ratio be included in the radwaste system we have, as described in detail below, obtained the necessary protection for potential future uses of the environs.

2. Shall Primary Consideration Go to Neighboring Individuals or to the General Population?

The record contains considerable controversy on whether the design objectives should be based on radiation exposure of the population at large or on exposure of individuals who live near light-water-cooled nuclear power plants.

It is abundantly clear that at radiation dose levels well below those described in existing radiation standards (such as those of FRC) the levels of risk to the health of an individual are very small. Accordingly, statistically significant risks from very low levels of radiation can be calculated only for large population groups.

On the other hand, it is equally clear that the individual living near the light-water-cooled nuclear power plant is concerned about the risk to himself and to his family and has only a secondary interest in the (obviously lower) average risk to the general population.

The Consolidated Utility Group (CU) argued that the controlling consideration in establishing numerical dose objectives should be radiation doses to the general population rather than to individuals. They held[24] that, although for regulatory simplicity it might be desirable for Appendix I to continue to express its design objectives in terms of off-site individuals, the choice of the individual dose objective and of the individual to whom it applies should reflect the paramount importance of the population dose objective and should not be more stringent than can be justified on a cost-benefit basis in terms of population dose reduction.

In spite of this contention, CU, apparently for the sake of regulatory simplicity, stated its recommendations on design objectives in terms of dose to individuals. However, CU would make the individual dose compatible with a primary population dose objective[25] and would specify[26] that the individual selected for dose calculation be one whose living and recreational habits, including the source of his water and food and the quantity of his consumption of both, are representative of a significant number of individuals living in the general vicinity of the plant.

Andrew P. Hull also favored primary consideration to total population dose and subordination of individual dose limits to that limit. In his view[27] the available biological data would not justify going beyond the specification of an overall population limit, and, since the benefit of a nuclear power plant is the amount of electricity generated, this population dose limit ought to be specified with relation to plant capacity rather than on a per plant basis.

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[24] Consolidated Utility Group, Statement of Position, Jan. 19, 1974, p. 9.

[25] Ibid., pp. 26-27.

[26] Ibid., p. 69.

[27] Andrew P. Hull (Limited Participant), Feb. 11, 1974, p. 4.

Ebasco Services, Incorporated, also argued that population dose should be recognized as an important factor in decisions regarding Appendix I. R. M. Hartman[28] stated for Ebasco that, in his opinion, AEC had gone too far in details for implementing the dose limit to the nearest off-site individual and not far enough in considering the dose to a sizeable nearby population group.

General Electric (GE), on the other hand, would specify the numerical guides for the nearest neighbors. The GE closing statement[29] suggested that the ALAP numerical guides be established in terms of dose-limiting objectives for the nearest neighbors of a light-water-cooled power reactor and equal 1% of the present Federal Radiation Council Guides for the whole body and each body organ.

The State of Minnesota clearly supported the position that individual dose levels and not the average doses to a large population should be the controlling factors.[30] In this connection Minnesota also noted that, "in keeping with the American tradition of the importance of the individual, no one (and one might add, no one's offspring) should be required to assume a disproportionate amount of the risk."[30]

The Regulatory Staff has taken the position that, although average population exposure is important and should be minimized, primary attention must be given to limitations on the dose to individuals living in close proximity to the reactor site.[31,32] The record shows that this position did not substantially change throughout the hearing. During oral argument, Lester Rogers stated[33] for the Regulatory Staff:

> I think the primary objective of the regulation is, number one, to reduce the exposures and the risk to individuals, actual individuals that exist at the present time near the site, to as low as practicable levels. At the same time I think you must take into account the exposure to potential individuals, and by that I mean future users of the environment.

We agree that radiation dose levels to the general population are important considerations and that these levels should be kept to low values. We do not, however, agree that specification of an average population dose level alone will suffice. It seems clear to us that, in general agreement with the position of the Regulatory Staff and several other parties, Appendix I must take into account those individuals who live near the light-water-cooled power reactor facility.

It is axiomatic that, if the near neighbors of a nuclear plant, and consequently those maximally exposed to its emissions, receive low radiation

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[28] Tr., pp. 111-114.

[29] General Electric, Closing Statement, Jan. 21, 1974, p. 13.

[30] State of Minnesota, Final Statement of Position, Feb. 1, 1974, pp. 12-17.

[31] Regulatory Staff, Exhibit 1, Tab. 1, Jan. 7, 1972.

[32] Regulatory Staff, Exhibit 1, Tab. 3, Jan. 7, 1972.

[33] Oral Argument, Tr., pp. 23-24.

doses, then the general public will receive very low doses. It does not necessarily follow, however, that such population doses will in all cases be as low as practicable. A light-water-cooled nuclear power station in a very remote location (or even one employing tall stacks instead of augments for removal of radioactive material from gas streams) might ensure adequately low doses to its neighbors yet permit higher than necessary doses to the general population.

We believe that the design-objective guides that we adopt afford the needed and reasonable balance in this regard. The primary thrust of the numerical guides is the protection of near neighbors of the reactor. At the same time, the requirement for inclusion of all radwaste equipment with a favorable cost-benefit ratio serves to assure that, regardless of the reactor site characteristics, the general public is protected.

We are mindful of the position espoused by the State of Minnesota[30] that no group of individuals should be expected to assume a disproportionate amount of the radiation risk. We would certainly subscribe to the view that no group of individuals should be exposed to undue radiation risk in order to provide a benefit to other, less exposed, individuals—and we believe that Appendix I is consistent with that premise. But total equality of risk, however desirable, can seldom be realized in our modern industrial society. Wherever power plants, either nuclear or non-nuclear, are constructed, persons living near those plants will be exposed to marginally greater amounts of emissions than those residing farther away, and the same situation obtains in regard to other types of industrial facilities. We believe, however, that the design-objective guides which we adopt assure that even those individuals living closest to nuclear facilities will be exposed to emissions at exceedingly low levels, with consequent risks which are acceptable from a social as well as legal standpoint.

3. Shall the Guides Apply to Each Site or to Each Reactor?

Whether the design-objective guides should be applied to each water-cooled nuclear reactor or to all such reactors on a site is a fundamental question that provoked strongly contested and conflicting positions and for which the record shows no agreement. The several arguments are, in brief, the following.

Throughout the hearing, the Regulatory Staff took the position that the design-objective guides should apply to doses from effluents from all light-water-cooled power reactors at a site.[34,35] The Regulatory Staff position is based in part on the argument that near neighbors of multi-reactor sites should not be required to accept radiation dose levels higher than those required of near neighbors of a single reactor. The State of Minnesota, apparently on the ground

[34] Regulatory Staff, Exhibit 1, Tab. 1.

[35] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, p. 61.

that ". . .no group of individuals should be expected to assume a disproportionate amount of the radiation risk" supported this position.[30]

Both the General Electric Company (GE) and the Consolidated Utility Group (CU) strongly recommended that the design-objective guides limit doses from individual reactors at a site. They supported these recommendations by several arguments. General Electric contended[36] that a per-reactor design-objective guide that is as low as practicable for a single reactor will remain as low as practicable even if several reactors are congregated on a single site and that equipment augments unjustified on a cost-benefit basis for a single reactor can never be justified on a cost-benefit basis for multiple-reactor facilities. Indeed, GE suggested[36] that the environmental and other advantages of multi-reactor siting indicate that more lenience should be allowed for per-reactor emissions from a multi-reactor facility since these advantages will offset any added per-reactor radiological detriment and the added lenience would encourage the desirable clustering of power-generating installations.

General Electric contended further[37] that per-reactor application of the guides is justified by the ALAP cost-benefit considerations that control Appendix I and argued[37-39] that the Regulatory Staff has performed no cost-benefit analyses indicating the contrary.

In its statement of position,[40] CU expressed its belief that there are strong economic and environmental reasons for encouraging maximum use of existing sites and for planning and developing new sites for two or more reactor units. They pointed out that obvious economic advantages lie in the sharing of a large tract of land, in the sharing of facilities, and in the sharing of much of the expense of site investigation, engineering, licensing, construction management, and operating supervision and that environmental advantages flow from minimizing the inevitable environmental impacts associated with the development of new industrial sites.

The Consolidated Utility Group[40] insisted that, at the dose levels contemplated in the proposed rule (particularly with respect to gaseous releases), the effect of a site limitation would be to discourage and possibly prevent multiple reactor units from being placed on a single site and that it would also work an unnecessary hardship on existing multi-unit stations, including several three- or four-unit stations now planned or under construction. In a similar vein[41] CU pointed out that, although the proposed limits on doses from liquid effluents may not prove unduly burdensome for multi-reactor sites, the limits on doses

[36] General Electric, Reply, Mar. 14, 1974, p. 33.
[37] General Electric, Reply, Mar. 14, 1974, p. 32.
[38] Tr., pp. 3479-80 and 3482.
[39] Tr., pp. 3486-87.
[40] Consolidated Utility Group, Statement of Position, Feb. 19, 1974, pp. 57-58.
[41] Consolidated Utility Group, Reply, Mar. 7, 1974, pp. 21-25.

from noble gases and iodine may severely limit the number of reactors at a site unless stacks and, in some cases, radwaste augments that it considers unjustified on a cost-benefit basis are employed.

General Electric restated with added emphasis its position and that of CU in its closing statement[42] in the following words:

> Both the Consolidated Utility Group and GE took the position in the ALAP hearings that the Appendix I numerical guides must make special allowance for multi-reactor installations at a single site in order to preserve the overall environmental and economic advantages of minimizing the total number of power generation sites. The FES analyses, even when carried out with a "best-estimate" dose evaluation, show that application of ALAP design objectives as overall site limits, regardless of the number of reactors present, may limit the number of units on a site below that number that may be desirable for environmental and economic reasons. Such a forced geographic distribution of reactor sites of one or two units each will not reduce total population radiation dose from LWR effluents; in fact, it could increase total population dose if the distributed sites *in toto* have a lesser degree of local isolation than would the probably more favorable sites that would be selected for multi-unit use.

None of the other parties in this hearing directly addressed this question of whether the limits should have a per-reactor or per-site basis. Consolidated National Intervenors[43] (in their belief that, since we cannot prove that radiation at any level is harmless, we should permit no radiation releases at all) would seem certainly to prefer whichever limitation is the more stringent; this would presumably imply a preference for a strict limit upon emissions from all reactors at a site. Andrew P. Hull, who advocated[44] limits based primarily on doses to the population at large and who has suggested 2 man-rems per year per megawatt (electric) as a limiting design objective, seemed to favor essentially a per-reactor limitation. A similar observation may be made concerning the testimony of R. M. Hartman in a limited appearance for Ebasco Services, Incorporated, who recommended[45] that 0.1 man-rem per year per megawatt (thermal) be employed as a limit on population dose.

The Consolidated Utility Group would apparently place no limit, other than that obtained by the per-reactor limit, on doses from multi-reactor sites, but they insisted[46] that the resulting off-site dose to individuals living near

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[42] General Electric, Closing Statement, Jan. 21, 1974, pp. 28-29.

[43] Anthony J. Roisman to Algie A. Wells, et al., Feb. 15, 1972.

[44] Andrew P. Hull (Limited Participant), Final Statement of Position, Feb. 11, 1974, p. 4.

[45] Tr., pp. 109-116.

[46] Consolidated Utility Group, Statement of Position, Feb. 19, 1974, p. 16.

multi-unit sites would still be a small fraction of Part 20 limits and of generally accepted radiation standards and would constitute a trivial incremental risk to the health of the individuals.

On the other hand, GE would, despite its arguments described above, place an additional limit on dose levels from a multiple light-water-cooled nuclear reactor site. In its closing statement[47] GE recommended the language:

> For any combination of nuclear power reactors on one site, on adjacent sites, or on nearby sites, the applicant or applicants shall, in addition, provide reasonable assurance that the total incremental annual exposure (from either airborne or waterborne effluents) to any individual in unrestricted areas will not exceed four (4) percent of the Federal Radiation Protection Guides, as set forth in Federal Radiation Council Reports Numbers 1 and 2, May 13, 1960 and September 1961, for doses to the total body or any organ.

In support of that recommendation, GE argued[48] that the recognition in 10 CFR Part 50.34a that "as low as practicable" must be defined "in relation to the utilization of atomic energy in the public interest" requires allowance of slightly increased, but still trivial, exposures in order to achieve a doubling or tripling of electrical output at a site and the other environmental advantages of multiple-unit siting. Further, GE noted that allowing the nearest-neighbor dose resulting from a number of closely located light-water reactors, each meeting the regular single-reactor ALAP guides, to approach 4% of the Federal Radiation Protection Guides would still limit such doses to a small fraction of permissible dose and to a fraction of natural background exposure and would keep such doses within the variation in natural background radiation within the United States. In addition, GE pointed out that such a limit also addresses the subject of total dose to individuals from nearby but separate sites, which was not covered in proposed Appendix I.

We note that, though much qualitative argument was presented, the hearing record contains little specific information that will permit evaluation of dose levels from emissions from sites containing several light-water-cooled nuclear power reactors.

The Regulatory Staff prepared the Final Environmental Statement and did its cost calculations on the basis of sites containing two reactors. In its concluding statement[49] the Staff discussed the effects its recommended design-objective (per site) doses would have on limiting the number of reactors per site. From these considerations the Staff concluded[50] that the design-objective doses for liquid and gaseous effluents, other than iodine, pose no

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[47] General Electric, Closing Statement, Jan. 21, 1974, p. 28.

[48] Ibid., pp. 28-29.

[49] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, pp. 84-131.

[50] Ibid., p. 62.

practical limitations on the number of reactors per site. The design-objective thyroid dose for iodine poses limitations on the number of reactors per site for those sites where milk is a pathway of exposure within 500 to 1000 meters of the site unless stacks or extensive in-plant iodine-removal equipment is used. If stacks are used or if milk is not a pathway of exposure within 3000 or 4500 meters of the site, there appears to be no practical limitation on the number of reactors per site even with the iodine design objective.

With respect to liquid releases, CU stated:[51] "while neither we nor the staff have done the refined calculations necessary to establish the effect of multiple reactors on doses from liquid effluents, we would not expect that the proposed site limit on such doses would be a major factor in limiting the number of reactors per site."

However, CU argued that the situation for doses from iodine and noble gases is entirely different and pointed out that the Staff's findings, which confirm the CU calculations,[52] show that for sites with a cow-milk-infant food pathway in close proximity to a 500-meter site boundary the site limits of 15 millirems to the skin from noble gases and 15 millirems to the thyroid would be severely limiting. They indicated that for such cases boiling-water reactors with all augments justifiable by their cost-benefit analysis would be limited to 2 per site by the skin-dose limit and to zero by the thyroid-dose limit. Pressurized-water reactors with augments justified by cost-benefit analysis would not be appreciably limited (7 to 10 would be possible) by the skin-dose limit, but the thyroid-dose limit would permit no reactor to be built. Adding 100-meter stacks, which do nothing to reduce doses to the general population, would permit 4 to 6 boiling-water reactors or 2 pressurized-water reactors to be built.

The grouping of light-water-cooled nuclear power reactors on well chosen and suitable sites may have the potential for genuine advantages in the use of atomic energy in the public interest. This is a matter subject to separate and intensive study pursuant to Congressional mandate in the Energy Reorganization Act of 1974. Appendix I certainly should not foreclose such a course at this time.

We adopt, accordingly, an Appendix I that designates dose limitation guides to any individual in an unrestricted area on a per-reactor basis alone. The hearing record does not, we believe, provide quantitative information that can substantiate the values that a per-site guide should have. We are mindful that doses to the general population will not be increased and that they may be minimized by grouping light-water-cooled nuclear power plants. We are also of the opinion that it will be at least several years before sites containing as many as five light-water-cooled nuclear power plants are developed. Consequently, we see no way that design-objective guides set on a per-reactor basis can, in the near

[51] Consolidated Utility Group, Reply, Mar. 7, 1974, p. 22.
[52] Ibid., pp. 22-24.

future, result in individual exposures that are more than 5% of present-day (10 CFR Part 20) radiation standards. Indeed, we believe that, with the required inclusion of all radwaste augments justified on a cost-benefit basis and with the realization that several reactors cannot physically be placed so as to all be a minimum distance from the maximally exposed individual, the actual doses received by individuals will be appreciably less than this small percentage.

Our decision based as it must be on the record cannot include items not covered by that record. The ALAP hearing properly did not address the possibilities or the problems of sites containing many nuclear reactors along with other nuclear facilities or even many light-water-cooled nuclear power plants. It may be that so-called nuclear energy centers—or even sites that contain many light-water-cooled nuclear power plants—have special virtues. We do not know. By the time such multi-reactor sites are necessary or desirable, technologies not now known may be available for minimizing radioactive materials in effluents from them. Again, we do not know. It seems clear that such installations will require large and favorably situated sites and that such installations are several years, at least, in the future. Meanwhile, much valuable experience will be gained concerning radioactive emissions from sites containing a few light-water-cooled nuclear plants. It would seem to us that, in due course and when experience is available, the question of the desirability of a per-site limitation on emissions from multi-reactor sites should be examined further.

4. What Shall Be the Numerical Values of the Design-Objective Guides?

A superficial examination of the record might suggest only minor disagreement over the numerical values of the design objectives. A more detailed examination, however, reveals that this notion of minor disagreement is illusory. In fact, the general similarity of the design-objective values recommended by the several parties tends to mask the considerable differences in the bases on which these values are suggested. This is another question on which we have had to decide among conflicting views.

The proposed Appendix I limited the annual dose to any individual from radioactive materials in each effluent type (liquids, gases, and as radioiodine and particulate matter) from all reactors on a site to 5 millirems to the total body or to any organ.[53,54]

General Electric (GE) recommended[55] that the design-objective dose values for nearest neighbors of each light-water-cooled nuclear power reactor be set at 1% of the FRC radiation protection guides from each of the effluent types. They

[53] Regulatory Staff, Exhibit 1, Tab. 1.

[54] Regulatory Staff, Concluding Statement of Position, p. 48.

[55] General Electric, Closing Statement, Jan. 21, 1974, pp. 13, 26 and 28.

recommended specifically that the objectives for each effluent type and from each reactor should be 5 millirems per year for the total body, 15 millirems per year for the thyroid, and 30 millirems per year for the skin.

Consolidated Utility Group strongly urged[56] the adoption of a per-reactor value equal to 1% of ICRP whole-body and organ dose values for individuals in the general population for each effluent type including ICRP values for organs other than the whole body. They suggested that the individual thyroid-dose objective should be changed to 15 millirems for children and 30 millirems for adults and that the individual skin dose be changed to 30 millirems.

The State of Minnesota in its final statement appeared to endorse the proposed Appendix I position to limit the annual dose from each effluent type and from all reactors at a site to 5 millirems to the total body or any organ.[57] Douglas LaFollette has also indicated his strong support of this position.[58]

Several other suggestions were made. The Tennessee Valley Authority suggested[59] that "the costs and consequences of achieving 1% of Part 20 limits should be carefully balanced against the costs and consequences of achieving instead, for example, 10% of Part 20 limits." Merril Eisenbud suggested, on behalf of the Atomic Industrial Forum, the value 5 millirems to the whole body, gonads, or bone marrow and 15 millirems to all other organs.[60,61] Consolidated National Intervenors,[62] argued that no radioactive discharges should be permitted. At the other extreme, G. Hoyt Whipple[63,64] considered that numerical guidelines other than those given in 10 CFR Part 20 are unnecessary since the interpretation of 10 CFR Part 20 by the nuclear industry has resulted in performance so excellent that there is no need for further incentive.

Andrew P. Hull, who was a limited participant throughout the Hearing, argued[65] that a boundary limit of 25 millirems per year whole-body dose to individuals would be consistent with his proposal of 2000 man-rems per year limit for population dose from each 1000 megawatt (electric) reactor.

The Regulatory Staff modified its original position as a result of the Hearing. In its concluding statement[66] the Regulatory Staff agreed that the limiting dose

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[56] Consolidated Utility Group, Statement of Position, Jan. 19, 1974, pp. 68-69.

[57] State of Minnesota, Final Statement of Position, Feb. 1, 1974, pp. 8 and 17.

[58] Final Environmental Statement, WASH-1258, July 1973, Vol. 3, p. 38.

[59] Ibid., p. 314.

[60] Ibid., p. 96.

[61] Tr., p. 86, Statement by Merril Eisenbud, p. 5.

[62] Anthony J. Roisman to Algie A. Wells, et al., Feb. 15, 1972, p. 7.

[63] Final Environmental Statement, WASH-1258, July 1973, Vol. 3, p. 94.

[64] G. Hoyt Whipple, Testimony on the Proposed Appendix V to 10 CFR Part 50, Feb. 20, 1972.

[65] Andrew P. Hull, Final Statement of Position, Jan. 30, 1974.

[66] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, pp. 48-49 and 25-30.

to the thyroid from radioiodine and particulate matter in gaseous effluents should be changed from 5 to 15 millirems per year. They made this change because as a practical matter the dose to a child's thyroid is controlling for purposes of design objectives; evidence developed in the record shows that a design objective of 5 millirems per year is not practicable with respect to the state of technology and the costs of iodine-removal equipment, where milk cows graze in the near vicinity of the site.

The Regulatory Staff also recommended[66] that the skin dose due to external exposure from beta and gamma radiation released in gaseous effluents from all reactors on a site be changed from 5 to 15 millirems per year because it is not practicable to design to limit the beta dose to 5 millirems per year.

The Regulatory Staff continued to recommend that the design-objective dose from radioactive materials in liquid effluents from all light-water-cooled nuclear power reactors at a site be kept at 5 millirems per year to the total body or to any organ.[67] The Staff argued that both CU[68] and GE[69] agree that this design objective is practicable for liquid effluents.

In its reply statement, however, CU insisted that it no longer agreed completely with that summation.[70] CU indicated its agreement with that assessment for standard river sites. CU contended, however, that at standard lakeshore and seashore sites, with some combinations of reactor types and cooling modes, and with the Staff's bases, cost estimates, and conservative models it was necessary to include augments over and above those justified by its cost-benefit analyses (at $1000 per man-rem and $333 per man-thyroid-rem) to meet the per site design objective of 5 millirems to the total body and to any organ. Careful consideration of the testimony of Walton A. Rodger[71] indicates that when liquid radwaste augments justified on a cost-benefit basis for two-reactor stations on standard river sites are used on all standard sites the calculated doses to maximally exposed individuals are quite low. Maximum total body dose to an individual appears to be about 1.1 millirems per year for a two-reactor PWR station with cooling towers on a lakeshore site; all other total body doses from two-reactor stations are less, and many are markedly less, than half this value. With these same liquid radwaste augments the maximum individual organ doses are calculated to be 6 millirems to the thyroid from a two-reactor BWR station with cooling towers on a seashore site and 1.8 millirems to the thyroid from a two-reactor PWR station with cooling towers on a

[67] Ibid., p. 50.

[68] Tr., pp. 3996-98.

[69] General Electric, Closing Statement, Jan. 21, 1974, p. 16.

[70] Consolidated Utility Group, Reply, Mar. 7, 1974, pp. 15-17.

[71] Tr., p. 3909, Additional Testimony of Walton A. Rodger on Behalf of the Consolidated Utility Group, Nov. 9, 1973.

seashore site; all other cases show maximum organ doses well below, with many markedly below, these values.

We are mindful of the claims by CU[70] that for some of these cases the liquid radwaste augments are not justified by the cost-benefit analysis. Indeed a careful evaluation of data in Dr. Rodger's testimony suggests that effective radwaste augments that can be justified on a cost-benefit basis (at the high man-rem and man-thyroid-rem worths be used) for all cases except that of two-reactor PWR stations with cooling towers at seacoast sites.* Moreover, we are aware that the values $1000 per man-rem and $333 per man-thyroid-rem used by Walton Rodger in his cost-benefit analysis may ultimately prove to be unrealistically high, and that some real sites may yield higher calculated individual doses to the maximally exposed individual than do these standard sites. In addition, we realize that in many cases liquid effluents from a single reactor will lead to calculated doses that are only slightly less than those from a two-reactor station.

After consideration of the CU testimony regarding doses from liquid effluents from light-water-cooled power reactors with technologically sound radwaste augments we are convinced that design-objective guides with 5 millirems total-body dose and 15 millirems as the dose to any organ would be unduly lenient on the per-reactor basis proposed by CU and by GE. However, the same testimony indicates that, for liquid effluents, the staff's suggested limit of 5 millirems to any organ is somewhat too restrictive; this limit is not met for a two-reactor station using BWRs with cooling towers at a standard seacoast site even if the radwaste system includes some augments that lack a favorable cost-benefit ratio for that site.

After careful consideration of the entire record, including the views of all parties, in light of the definition of "as low as practicable" which requires "taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety", we have chosen to adopt as the design-objective guides for liquid effluents from each light-water-cooled power reactor the requirement that the annual dose or dose commitment from all pathways of exposure shall not exceed 3 millirems to the total body or 10 millirems to any organ. For calculation of such doses, it is assumed that rivers are used as sources of drinking water and that rivers or other pertinent bodies of water are used as sources of fish or other seafood unless positive evidence is provided to prove otherwise. The models also assume (as discussed in more detail under Implementation, Chapter 5) that near neighbors of the light-water-cooled nuclear power reactor include individuals with habits differing significantly from

*For that combination, radwaste augments of the type proposed for other twin-PWR stations can provide very low doses; they are not cost-beneficial (at $1000 per total-body man-rem and $333 per man-thyroid-rem) for this case because the population dose for the base case is very low and its further decrease has a low monetary value.

the average. We believe that the record indicates that for virtually all reactor sites this design objective can readily be met.

The design objective to control exposure from gaseous effluents has been expressed in terms of a limitation on the annual dose due to gamma radiation or beta radiation from each reactor at or beyond the boundary of the site. This design objective, in effect, provides flexibility for considering site-related meteorology and the distance from the reactor to the site boundary, but it requires the assumption that people may live just outside the site boundary.

The Regulatory Staff recommended in its Concluding Statement that the skin dose due to external exposure from beta and gamma radiation released in gaseous effluents be set at 15 millirems per year and that the total-body dose from these sources be held at 5 millirems per year. The Staff, however, maintained that these should be the limiting doses from all reactors at a site. GE[55] and CU[56] argued, in effect, that the total-body dose limit should be 5 millirems per year, the skin dose limit should be 30 millirems per year, and that these limits should apply to each individual reactor.

On this point again the testimony[71] of Dr. Walton Rodger is germane. He has shown that gaseous radwaste augments justifiable on a cost-benefit basis (again at $1000 per man-rem and $333 per man-thyroid-rem) are available for both PWRs and BWRs at any type of standard site. On standard sites (500 meter site boundaries) two-reactor BWR stations with these justifiable gaseous radwaste augments can barely meet the skin dose limit of 15 millirems per year and can meet the total body limit of 5 millirems per year by slightly more than two-fold. Two-reactor PWR stations with their justifiable augments show somewhat lower doses.

Accordingly, we see no justification for a per-reactor design objective guide limit of 30 millirems to the skin as proposed by CU and GE. Indeed, it might be argued that per-reactor limits slightly below 5 millirems to the total body and 15 millirems to the skin could be justified. However, we realize that the cost-benefit bases of $1000 per man-rem and $333 per man-thyroid-rem may prove to be too high and that actual site characteristics and meteorology may differ substantially from those of the standard sites upon which the calculations were done. We have, accordingly, specified dose rates of 10 millirads per year for gamma radiation and 20 millirads per year for beta radiation; these levels would normally be considered to limit doses to individuals in unrestricted areas to not more than 5 millirems to the total body and to less than 15 millirems to the skin. Provisions are made to decrease this annual dose if for a particular site there are special circumstances that necessitate such a decrease to ensure that an individual in an unrestricted area shall not receive more than 5 millirems total-body exposure. Provision is made for an increase in this release rate if special site characteristics or circumstances indicate that such an increase will not lead to individual doses above 5 millirems per year to the total body or 15 millirems to the skin. We believe the record indicates that this design

objective is practicable for individual light-water-cooled power reactors at essentially all sites.

The design-objective guide for limits upon individual dosages from radioiodine and radioactive material in particulate form probably proved the most difficult and most strongly contested issue in this rulemaking proceeding.

In its concluding statement[66] the Regulatory Staff recommended that the limiting dose to the thyroid should be set at 15 millirems per year. They concluded that a design objective of 5 millirems per year is not practicable, considering the state of technology and the costs of iodine removal equipment where milk cows graze in close proximity to the site. Walton Rodger[71] testified that two-reactor stations with either PWRs or BWRs and with all gaseous radwaste augments justified on his cost-benefit basis ($1000 per total-body man-rem and $333 per man-thyroid-rem) yielded very high thyroid doses (490 millirem/year for PWRs and 850 millirem/year for BWRs) via the iodine-grass-cow-milk-infant pathway when the Staff's conservative assumptions were used and when cows grazed close to the 500 meter site boundary. Indeed, Dr. Rodger's testimony shows that very expensive augments would be required to approach 15 millirems/year to the child's thyroid where milk cows graze close to the site.

As indicated under Implementation (Chapter 5), the design-objective quantity is to be calculated at the location of the nearest milk cows that are actually present at the time of licensing of the reactor. As a consequence we see no basis for increasing the limit on design-objective dose to any organ from radioiodine and radioactive materials in particulate form above 15 millirems per year. For virtually all cases, the thyroid dose will be the only one of real consequence from this source. However, we do not find in the record compelling evidence to justify reducing the design-objective limit. We have, accordingly, set the design objective to ensure that emission of radioiodine and radioactive material in particulate form from each light-water-cooled nuclear power reactor shall not result in an annual dose to the thyroid for any individual in an unrestricted area from all pathways of exposure in excess of 15 millirems. Future uses of the environment with respect to food pathways will be protected by limiting conditions of operation that require monitoring and surveillance programs designed to identify changing land uses that may result in exposure of individuals to iodine. Appropriate control measures, including the modification of land uses, would be required if monitoring programs during operation indicate that the design-objective guide levels are being exceeded.

As a further requirement, in addition to the design-objective guides described above, the radwaste systems shall include all items of reasonably demonstrated technology that can for a favorable cost-benefit ratio effect reductions in total-body and thyroid dose to the population within 50 miles of the reactor. Such a provision will ensure that selection of a very large and isolated site or of a site where the nearest milk cows are far away cannot justify the release of large

quantities of radioactive materials, and especially radioiodine, simply because no substantial individual doses would result.

5. What Are the Bases on Which Cost-Benefit Evaluations Will Be Made?

A balance of benefits to the general public from the generation of electricity by light-water-cooled nuclear power plants with the associated costs is not germane to the decisions concerning Appendix I. The cost-benefit balance appropriate to decisions regarding Appendix I deals with the cost from installation (and use) of augments to sophisticated radwaste systems versus the benefits obtained through their use.

The cost for addition and for operation of an augment to the radwaste system is generally expressed in dollars; to establish such costs—and the annualized cost—is easy in principle and (as described in Section 5a, below) is only moderately difficult in practice. Calculation of the decrease in radiation dose to the population within 50 miles of the reactor that would result from addition of an augment also seems to be relatively straightforward (see Section 5b, below).

A recent and generally accepted evaluation[72] of the effects of ionizing radiation is available; it was used by the Regulatory Staff in preparation of its Final Environmental Statement.[73] It is accordingly possible to estimate in a straightforward and almost certainly conservative way the benefits to the public health obtained by decreasing the radiation doses to the population. The casting of these benefits into monetary terms—as the dollar value of decreasing by a total-body man-rem and by a man-thyroid-rem (or other essentially equivalent quantities) the dosage to the population—is, therefore, the only missing information required to strike the cost-benefit balance.

We are of the opinion, after careful consideration, that the hearing record will not support an unambiguous choice of a specific dollar value for the worth of a unit decrease in radiation exposure to the population. On the other hand, we believe that cost-benefit balances should be used to define the limiting population dose from a light-water-cooled power reactor under the as low as practicable criterion. Accordingly, we propose to conduct a rulemaking hearing to determine the appropriate monetary value for reduction of radiation doses to the general population.

When better values (or other appropriate criteria) for the worth of a total-body man-rem and a man-thyroid-rem are established and adopted, they

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[72] National Academy of Sciences–National Research Council. The Effect on Populations of Exposure to Low Levels of Ionizing Radiation (The BEIR Report), Report of the Advisory Committee on the Biological Effects of Ionizing Radiations, November 1972.

[73] Final Environmental Statement, WASH-1258, July, 1973.

shall be used in the cost-benefit analyses required by this Appendix I. Meanwhile, as an interim measure, we adopt the values described in Section 5-c below.

These values can be used in the interim to translate into dollars per year the value of a radwaste augment's contribution to the decrease in man-rem and man-thyroid-rem per year to the population within 50 miles of the reactor. In this way the worth in dollars per year can be established for radwaste augments when each is added to the radwaste system sequentially, and in order of diminishing monetary worth.

We intend that radwaste augments necessary to satisfy the limits on maximum doses to individuals will be required in all cases. Additional augments will be required when, and only when, the worth of each equals or exceeds the annualized cost of its installation, maintenance and operation.

a. What Are the Monetary Costs of Augments to Radwaste Systems?

During the initial phase of the ALAP Hearing (prior to May 6, 1972), the Regulatory Staff presented preliminary information[74,75] concerning the costs of radwaste systems. Other information concerning costs of radwaste systems was also presented in this initial phase of the hearing by CU[76,77] and to a limited extent by GE.[78] Walton Rodger, who presented what might fairly be called the only comprehensive formulation of costs[76] and of annualized costs[77] during this period, criticized[79] the Staff's data.

The Regulatory Staff's publication of the Draft Environmental Statement, its consideration of the many diverse comments on this document, and its subsequent publication of the Final Environmental Statement[80] were important steps in providing a basis for proper costing of radwaste systems and for cost-benefit analyses. Comments on the Draft Environmental Statement showed, as might have been expected, some disagreement with the estimated cost of radwaste equipment.

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[74] Regulatory Staff, Exhibit 1, Tab. 2.

[75] Tr., pp. 536-590.

[76] Walton A. Rodger, Statement on Behalf of the Consolidated Utility Group, Mar. 17, 1972, incorporated in Tr., pp. 1748-52.

[77] Walton A. Rodger, Supplemental Statement on Behalf of the Consolidated Utility Group, Apr. 26, 1972, incorporated in Tr., p. 2753.

[78] General Electric, Exhibit 3, Apr. 26, 1972, items 4 and 5.

[79] Walton A. Rodger, Statement on Behalf of the Consolidated Utility Group, Mar. 17, 1972, p. 41.

[80] Notice of Availability of the Draft Environmental Statement was published in the *Federal Register*, Jan. 16, 1973 (38 *F.R.* 1616).

Consolidated Edison Company of New York, Inc., stated[81] that the cost estimate in the Draft Environmental Statement seemed to be generally lower than their experience would indicate. They showed a few specific examples in which the estimated costs appeared to be low by at least a factor of 3.

In its comments on the Draft Environmental Statement,[82] CU had only minor criticisms of the estimated costs of individual items of radwaste equipment. However, CU argued strongly[83] that the cost picture was badly distorted by the use in the Draft Environmental Statement and the Final Environmental Statement of a two-reactor site in which much of the radwaste equipment was shared between the two reactors.

Moreover, after publication of the FES, CU insisted[84] that, since costs in the FES were nearly a factor of 2 less than in the draft statement, they could no longer avoid taking issue with the Staff's cost estimates. After a detailed elaboration of many points on which they found the Staff's cost estimates deficient, CU concluded[85] that the FES radwaste systems could not possibly be built and operated for less than twice the costs indicated and that more likely the cost would be three to four times that given in the FES.

The Regulatory Staff, on the other hand, continued to defend the cost estimates presented in the FES. In its concluding statement[86] the Staff pointed out that the CU data were based on "industrial experience" and included overtime and other exceptional factors and that CU had included backfitting experience[87,88] and optional redundant equipment. The Staff argued[86] that none of these items should be included in the cost of radwaste systems for cost-benefit analysis.

The Staff did include redundant components in costing the radwaste systems in the Draft Environmental Statement but, at least partly because of criticisms in comments on the draft, removed such redundancy "...which is not required for meeting ALAP or licensing requirements and therefore should not be included in costs for meeting dose reduction in cost-benefit analyses," from the systems evaluated in the FES.[89]

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[81] Final Environmental Statement, WASH-1258, Vol. 3, July 1973, pp. 311-312.

[82] Ibid., p. 243.

[83] Ibid., p. 244.

[84] Tr., p. 3909; Walton A. Rodger, additional testimony on Behalf of the Consolidated Utility Group, Nov. 19, 1973, pp. 38-39.

[85] Consolidated Utility Group, Statement of Position, Jan. 1974, p. 36.

[86] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, pp. 43-45.

[87] Tr., p. 3975.

[88] Tr., p. 3985.

[89] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, pp. 44-45.

The Consolidated Utility Group took the position that redundant radwaste equipment is often necessary. They pointed out[90] that it is not the practice of utilities to install such systems without the provision of adequate redundancy for safe and reliable operation nor is it likely in actual practice that license conditions would permit them to do otherwise.

After consideration of the several differences between the Staff and the CU estimates, the Staff concluded[91] that there were no significant unexplained differences with respect to cost estimates.

We believe after consideration of the record that the Staff's cost estimates for construction and operation of radwaste systems may be slightly low but that they are quite unlikely to be in error by factors of 3 or 4. It seems to us that to the extent—and only to the extent—that equipment redundancy is required by the licensing process the cost of such redundant items should be included in the total costing of the system. It seems equally clear that the additional costs, if any, due to increased attention to quality assurance should be included in the radwaste-system costs. It does not seem reasonable to include costs of overtime or other special features that may have in specific instances contributed to higher than normal costs of installation. On the other hand, the costs of operating the augmented equipment should be realistically estimated; such estimates should include reasonable allowances for maintenance of equipment and for the increased work force and payroll based, insofar as is possible, on actual experience as this experience exists or becomes available.

b. How Should Cost-Benefit Balances Be Calculated?

The costs of installation and operation of radwaste systems were, as indicated above, a matter of controversy; but an even more fundamental difference of opinion existed (primarily between the Regulatory Staff and CU) on the manner in which cost-benefit balancing was to be done.

The Regulatory Staff has, in effect, added for each effluent type the several radwaste augments as a unit to the base-case dual light-water-cooled nuclear power reactor system.[80] From estimates of the cost of the radwaste augment package and of the resulting decrease in radiation exposure to the population, the Staff obtained a value in dollar cost per man-rem of the resulting reduction in population dose.

The major thrust of the CU argument against the Staff's cost-benefit balances concerned the practice of adding the several radwaste augments together as a unit to the base-case. As Walton Rodger stated for CU:[92]

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[90] Walton A. Rodger, Additional Testimony on Behalf of Consolidated Utility Group, Nov. 9, 1973, p. 49.

[91] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, p. 45.

[92] Tr., p. 3912; Walton A. Rodger, Summary of Additional Testimony dated Nov. 9, 1973, on Behalf of the Consolidated Utility Group, p. 1.

> The thrust of the Testimony which we filed on November 9, 1973 was to break down into their component parts the cost-benefit analyses presented in the FES. The first purpose for doing this was to demonstrate that while some augments to the gaseous and liquid radwaste systems of PWR and BWR are justified on a cost-benefit basis, others are not. In fact many of the augments considered in the FES result in the expenditures of incredibly large numbers of dollars for every dollar of value returned. The "lumped" approach used in the FES cost-benefit analyses completely hides this fact.

In effect, Dr. Rodger used the Regulatory Staff's dose calculational models and the Staff's values for annual releases of radioactivity and annual costs for the radwaste augments and conducted the cost-benefit study by adding augments individually and sequentially to the liquid, the noble-gas, and the iodine and particulate radwaste systems.

We agree that by this technique of sequential addition of the most effective radwaste augments (so that in effect each addition constitutes with the other augments already present a new base-case to which the next augment is to be added), the cost-benefit evaluation can show the true worth of each individual augment—that is, the decrease in total-body man-rem and in man-thyroid-rem for which the augment is responsible. The cost-benefit calculations required by Appendix I should include assessment of the worth of each augment by this procedure.

c. Can the Monetary Value of Dose Reduction to the General Population Be Determined?

The Regulatory Staff agreed that it was desirable to express the cost-benefit balance in dollars on both sides of the equation,[93] but the Staff has been reluctant to assign a dollar value to the worth of reduction of radiation dose to the general population. The Staff took the position[94] that there is no agreement on monetary values for the reduction of risk to human life or suffering or on how such values should be applied. They reason that it is not possible to reflect properly the worth of reduction of risk to human life in monetary terms since there are overriding moral values that cannot be quantified.

The Staff cites in the record[95] the several published estimates of the monetary cost of radiation exposure of the public; these range from $10 to $980 per man-rem. No values have been suggested for dose to single organs, such as the thyroid. However, the relative risk of the dose to the thyroid compared to the total body might suggest a lower value for a man-thyroid-rem than for a man-rem.

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[93] Final Environmental Statement, WASH-1258, July 1973, Vol. 1, p. 8-3.
[94] Ibid., pp. 8-2 and 8-3.
[95] Ibid., p. 83.

On the other hand, the Staff holds that despite the inherent difficulties in the direct use of monetary values, it appears useful to express, to the extent practicable, both costs of reduction of risk and benefits to society from such reduction in monetary units as at least one of the factors to be considered in arriving at judgments on reducing risk to as low as practicable limits.

In both the FES[96] and its concluding statement,[97] the Staff does use in its estimates of radwaste-system cost and the resultant reduction in population dose, values for cost per man-rem reduction. They do not, however, accept or reject radwaste systems because of the cost of such reduction.

It is clear from the record[98] that the Staff would leave to us the decision as to dollar value of man-rem reduction in population dose and the extent to which such a value would be given weight along with other considerations in the ALAP ruling.

In contrast, the Consolidated Utility Group did choose[99-101] a value for the worth of a man-rem. For CU, Walton Rodger stated[100]

> You may duck the issue all you want but in order to make a meaningful cost-benefit analysis you simply have to "bite the bullet" and assign a value to a man-rem. We recognize that this isn't easily done, that there are great subjective factors involved, and that this is an area in which reasonable persons may reasonably disagree. Nonetheless, we chose a value. We chose $1000/man-rem (and ⅓ of that for a man-thyroid-rem). The FES quotes a number of estimates for this value ranging from $10 to $980 with most being in the range of $100 to $600. A very current new estimate is $250. We deliberately chose a value above the range quoted for two reasons: (1) to be conservative in our assessment of the value of augments, (2) to make allowance for "overriding moral values" and other intangibles which are hard to quantify.

As the record makes clear[102,103] these values of $1000 per total body man-rem and $333 per man-thyroid-rem represent no independent assessment. They were obtained by CU simply by taking a value somewhat higher than the range of values[95] for the worth of a total-body man-rem suggested by the several

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[96] Final Environmental Statement, WASH-1258, July 1973, Vol. 1, p. 8-2.

[97] Regulatory Staff, Concluding Statement of Position.

[98] Tr., pp. 3472-73.

[99] Consolidated Utility Group, Exhibit 5, Walton A. Rodger, Additional Testimony on Behalf of the Consolidated Utility Group, Exhibit 9, 1973.

[100] Consolidated Utility Group, Exhibit 6, Summary of Additional Testimony dated Nov. 9, 1973, of Walton A. Rodger on Behalf of the Consolidated Utility Group, p. 2.

[101] Tr., pp. 3913-15.

[102] Tr., pp. 3944-45.

[103] Consolidated Utility Group, Statement of Position, Jan. 19, 1974, p. 31.

studies cited, and the ratio of thyroid dose limits to total-body dose limits recommended by FRC and ICRP.

While generally accepting the cost-benefit analyses presented by CU, GE seems to have made no recommendations for the worth of a man-rem.

The State of Minnesota made no assignment or decision as to the worth of a man-rem.[104] Minnesota has argued consistently that releases of radioactivity should be minimized but it has not tied this recommendation to the resultant dose effect nor has it made cost-benefit analyses in support of its recommendations.[104] However, it seems clear from the record that the State of Minnesota would put a very high value on a man-rem.[105]

We agree with the Regulatory Staff and with CU that there are great subjective factors to be considered in any judgment of the worth of reduction of a man-rem in dose to the general population. We are also well aware that a dollar figure for such worth is desirable—and is the only missing value—for the cost-benefit analysis that would provide a useful basis for decision concerning a portion of the guidance in Appendix I.

We are, however, of the view that the hearing record provides an insufficient basis for a decision as to the monetary worth for reduction in radiation dosage to the population.

The hearing record contains previously published estimates of worth of a total-body man-rem, but no comparable figures for worth of a man-thyroid-rem were presented. One of the participants[100] selected a value of $1000 per total-body man-rem and arbitrarily set the worth of a man-thyroid-rem at one third of that value. The hearing record, accordingly, contains no evidence of its own regarding monetary values for either of these quantities.

We are mindful that Appendix I applies only to effluents from light-water-cooled nuclear power reactors and cannot—based as it is on a record so limited—be construed to apply to reactors of other types or to other facilities in the nuclear fuel cycle. But we are also mindful that the choice of a value for the monetary worth of a man-rem reduction in population dose to the general public cannot be reasonably claimed to apply to only a single class of nuclear facility. We are therefore convinced that this (properly) limited record cannot be used to establish appropriate general values for the monetary worth of a man-rem reduction in total-body or of a man-thyroid-rem organ dose to the population.

Sound and unambiguous values for the worth of these quantities (or some other essentially equivalent criteria) are clearly needed for ultimate quantification of the as low as practicable concept. Accordingly, we propose to initiate a further rulemaking to ascertain the monetary worth of reduction in radiation

[104] Tr., pp. 1778-79.

[105] State of Minnesota, Final Statement of Position, Feb. 1, 1974, p. 14.

doses to the population.[106] When such better established values become available for adoption, we intend that they be used in the cost-benefit analyses required in this Appendix I.

Meanwhile, since the record cannot provide firm guidance as to worth of a total-body man-rem we believe it is the better course to accept, for the interim purpose specified hereinafter, the conservative value of $1000 for reduction of a man-rem in total-body dose to the population.

It can be argued that the worth of reducing the thyroid dose by a man-thyroid-rem is smaller. However, the record offers insufficient guidance upon this point. In this context we have accepted, as an interim measure, the value $1000 per man-thyroid-rem for purposes of the required cost-benefit balance. We emphasize that these are conservative outer limit figures and are accepted for use as such, as set forth below. It may well be that final values for the worth of these quantities will be smaller.

Consistent with the foregoing, as an interim measure and until more suitable values or other criteria can be established, we have decided that $1000 per total-body man-rem and $1000 per man-thyroid-rem—or such lesser values as may be demonstrated by the applicant to be suitable in a particular case—shall be used in the required cost-benefit balances.

6. Shall Exceptions to the Design-Objective Guides Be Allowed If Radwaste Systems Contain "Baseline In-Plant Control Measures"?

In its concluding statement the Regulatory Staff introduced the recommendation that exceptions to the design-objective guides for liquid effluents[107] and for radioiodine and radioactive materials in particulate form[108] be allowed if certain "baseline in-plant control measures" were included in the radwaste-systems design.

For liquid effluents the design-objective guides proposed by the Staff stated that[107] the calculated annual total quantity of all radioactive material from all light-water-cooled nuclear power reactors at a site should not result in an annual dose or dose commitment to the total body or to any organ of an individual in an unrestricted area from all pathways of exposure in excess of 5 millirems, and the calculated annual total quantity of radioactive material, except tritium and

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[106] We are aware that the National Academy of Sciences–National Research Council Advisory Committee on Biological Effects of Ionizing Radiations is currently studying and developing methodologies for benefit-risk-cost analysis for activities involving radiation exposure. It is possible that information on monetary values for the worth of reduction of radiation dose, as well as useful methodology, may be provided by this study.

[107] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, pp. 26-27.

[108] Ibid., pp. 29-30.

dissolved gases, should not exceed 5 curies for each light-water-cooled reactor at a site. However, if the applicant had proposed baseline in-plant control measures (of which several typical examples were listed), the calculated annual total quantity could be permitted to exceed the 5-curie limit for each light-water-cooled nuclear power reactor provided the design-objective guide for the dose limit was met.

The Staff has proposed no increase in its design-objective (per site) dose level even if the baseline in-plant control measures are included in the liquid-radwaste system. We believe that inclusion of such measures would certainly not justify an increase in the (per reactor) design-objective dose levels that we have adopted. Accordingly, since we have not included quantity limits in our design-objective guides,[109] we include no provision for baseline in-plant control measures for liquid effluents in the Appendix I that we adopt.

For emissions of radioactive iodine and radioactive material in particulate form, the Staff proposed that an exception to the design-objective dose be allowed if the baseline in-plant control measures were included in the radwaste-system design.[108] The Staff recommended that the (per site) annual dose limit from radioiodine and radioactive material in particulate form should not exceed 15 millirems to any organ of an off-site individual and that the calculated annual total quantity of iodine-131 in gaseous effluents should not exceed 1 curie for each reactor. If the applicant had proposed baseline in-plant control measures (of which several typical examples were listed), he could be permitted releases of radioiodine and radioactive material in particulate form in quantities that did not exceed four times the quantity that would yield the 15 millirem dose to any organ of an off-site individual.

Both GE and CU argued strongly against inclusion of such baseline in-plant control measures in Appendix I. They claimed that the baseline in-plant control measures approach is unwarranted since the ALAP record shows that most of the "measures" are unjustifiable on a cost-benefit basis;[110-113] that monitoring data at operating light-water-cooled nuclear power reactors show that most of these "measures" are unnecessary to meet the design objectives;[114,115] and that, should augmentation for building air ventilation releases be necessary, most of the suggested "measures" would be technically and economically inappropriate for reducing such emissions.[115]

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[109] Section B4 of this chapter, above.

[110] General Electric, Reply, Mar. 14, 1974, pp. 22-23.

[111] Walton A. Rodger, Additional Testimony on Behalf of the Consolidated Utility Group, Nov. 9, 1973, pp. 1-38.

[112] Consolidated Utility Group, Statement of Position, Jan. 19, 1974, pp. 29-41.

[113] Consolidated Utility Group, Reply, Mar. 7, 1974, pp. 6-7.

[114] Regulatory Staff, Exhibit 24, Oct. 1973.

[115] General Electric, Exhibit 5, Nov. 9, 1973.

In addition, GE argued[116] that, until the release of the Regulatory Staff's concluding statement, the guides of proposed Appendix I and the alternative provisions proposed by other parties to the proceeding had been drawn exclusively as performance standards. The suggested incorporation of equipment criteria represented a fundamental change in the underlying regulatory approach and would allow the Staff to prescribe specific effluent-treatment equipment—thereby intruding on the traditional role and responsibility of the applicants and their engineering consultants—without reference to the performance and cost-benefit status of the equipment prescribed.

We deem it the sounder course that the design-objective guides should be drawn as performance goals and should not, unless necessary for the protection of the public health and safety, incorporate requirements for specific equipment. Our assessment of the record does not support a conclusion that installation of the baseline in-plant control measures—and the consequent relaxation of the design-objective guides on doses to individuals—is necessary or desirable for such protection of the public health and safety.

We note that CU has stated[117] that PWR's and BWR's using the assumptions in the FES and with the radwaste augments justifiable on a cost-benefit basis (and which we would require) would release about 0.6 and 0.3 curies per year of iodine-131, respectively. Such releases of iodine-131 from a typical reactor site would be expected to result in total doses of about 60 and 30 man-thyroid-rem to the population within 50 miles. Additional radwaste augmentation may well be required to limit the thyroid dose to specific individuals via the milk pathway where cows graze close to a site. However, we believe that, with the design-objective values of our adopted Appendix I, the near neighbor of the light-water-cooled nuclear power reactors will be adequately protected and that the baseline in-plant control measures would seldom, if ever, be necessary. Accordingly, we have not included provisions for such measures in the Appendix I that we adopt.

7. Shall Limits Upon Direct Gamma Radiation From Reactors and Associated Equipment Be Included?

The State of Minnesota took the position that Appendix I boundary-dose calculations should specifically include the contributions from direct gamma radiation from the reactor site (gamma shine).[118] Consolidated National Intervenors[119] also raised this point concerning radiation other than that from radioactive materials in effluents from light-water-cooled nuclear power reactors.

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[116] General Electric, Reply, Mar. 14, 1974, p. 21.

[117] Consolidated Utility Group, Reply, Mar. 7, 1974, pp. 12-13.

[118] State of Minnesota, Final Statement of Position, Chapter II-E, Part 3, Feb. 1, 1974.

[119] Anthony Roisman to Algie Wells, et al., Feb. 15, 1972, p. 6.

An early position of the Environmental Protection Agency (EPA)[120] also included the suggestion that direct gamma radiation should be considered. The Environmental Protection Agency no longer holds this view; it states:[121] "We recognize that the scope of the present rulemaking is limited to material effluents, and that for this reason did not address the issue of direct and indirect gamma radiation from onsite locations. We suggest the Commission deal with this category of exposure through early issuance of limiting criteria for doses for such radiation."

The hearing record reveals that experience has shown the highest radiation dose rate at the site boundary to be generally less than 10 millirems per year from this source; since the dose rate decreases rapidly to negligible levels with distance from the site boundary, this source contributes only a fraction of a man-rem per year to the population dose.[122]

This hearing has been concerned from the beginning with keeping "as low as practicable" the risks to the public from radioactive *materials* in effluents from light-water-cooled power reactors. Moreover, as the Regulatory Staff testified,[123] proposed Appendix I was not intended to include direct radiation from the nuclear facility.

We agree that such direct or scattered gamma radiation from the turbine building and from waste storage tanks and other equipment containing radioactive material should continue to be taken into account in the licensing process. Such gamma radiation should be carefully controlled by proper design and operation of the reactor and associated equipment. It may be appropriate to issue in due course further guidance on levels "as low as practicable" from this radiation source, but we believe that such guidance should clearly be separate from Appendix I.

8. Will Increased Occupational Exposure to Radiation Prejudice the Favorable Effect of Appendix I?

The Consolidated Utility Group (CU), the Atomic Industrial Forum (AIF), and to a lesser extent the General Electric Company showed concern about the possible effect of proposed Appendix I on occupational exposure.

The AIF, in commenting on the Draft Environmental Statement,[124] deplored that statement's lack of consideration of potential increases in occupational radiological exposures with the implementation of proposed

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[120] Final Environmental Statement, WASH-1258, July 1973, Vol. 3, pp. 263-264.

[121] W. D. Rowe to L. Manning Muntzing, received Mar. 12, 1974, p. 3.

[122] Regulatory Staff, Concluding Statement of Position, Feb. 20, 1974, p. 65.

[123] Tr., pp. 595-598.

[124] Final Environmental Statement, WASH-1258, July 1973, Vol. 3, p. 98.

Appendix I and suggested that the additional holdup and storage of radioactive materials necessary could result in substantial increases in on-site exposures.

In its closing position statement,[125] CU concluded that there is a serious danger that the reduction in off-site doses sought through proposed Appendix I will be more than offset by an increase in occupational exposure.

In objecting to equipment required as a result of "farfetched assumptions," GE in its closing statement[126] stated that such equipment could, in fact, produce a net increase in the exposure of the human gene pool to radiation by increasing the doses to the employees of the light-water-reactor facility. These positions of CU and GE seem to be based to a substantial extent on the testimony of Morton I. Goldman[127,128] concerning likely increases in occupational exposure due to augments to radwaste systems and of the relative importance of such radiation exposure compared to radiation exposure to the population.

In assessing the probable impact of Appendix I on occupational exposure, the Regulatory Staff attempted an analysis of data equivalent to that presented by Dr. Goldman. They found that no conclusions were warranted on the basis of the data and that a more detailed evaluation was necessary. The Staff proceeded to study occupational exposure by visiting 11 selected operating nuclear power plants, reviewing exposure records, and holding discussions with utility personnel.[129] This study suggested that augmentation of the radwaste-treatment systems to meet the objectives of proposed Appendix I might be expected to increase occupational exposure by about 7%. The observation that little if any of the increase in exposure would be unavoidable seems of even more significance. The general conclusion of the Regulatory Staff is that "implementation of Appendix I need not significantly increase occupational exposure".[130] This conclusion seems not to be challenged in the replies by CU[131] and GE[132] to the concluding statement of position of the Regulatory Staff.

We continue to be concerned about the level of occupational exposure in nuclear power plants, and steps are being taken to reduce the occupational

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[125] Consolidated Utility Group, Statement of Position, Docket RM-50.2, Jan. 19, 1974, p. 17.

[126] General Electric, Closing Statement, Docket RM-50-2, Jan. 21, 1974, p. 34.

[127] Morton I. Goldman, Additional Testimony on Behalf of the Consolidated Utility Group (Part 1), Occupational Exposure, Docket RM-50-2.

[128] Tr., pp. 3605-14 and 3999-4048.

[129] Charles A. Willis, A Study of the Occupational Radiation Exposure Due to Radwaste Treatment Systems at Nuclear Power Plants, Docket RM-50-2, Exhibit 23.

[130] Regulatory Staff, Concluding Statement of Position, Docket RM-50-2, Feb. 20, 1974, p. 64.

[131] Consolidated Utility Group, Reply, Mar. 7, 1974.

[132] General Electric, Reply, Mar. 14, 1974.

exposures to levels that are "as low as practicable." Regulatory Guide 8.8, issued in July 1973, details the occupational-exposure control information that should be provided in license applications. This information is now being reviewed in the licensing process, and applicants are being asked to improve plans, procedures, and designs where appropriate to reduce exposure. The SAR Standard Format document has been revised to increase emphasis on occupational-exposure control. Thus, the importance of keeping occupational exposure "as low as practicable" is recognized, and progress is being made toward that objective. We believe that with proper attention to this point, increases in occupational exposures resulting from implementation of Appendix I can be made small if not negligible.

CHAPTER IV
GUIDES ON TECHNICAL SPECIFICATIONS FOR LIMITING CONDITIONS FOR OPERATION

Section 50.36a(b) of 10 CFR Part 50 provides that licensees shall be guided by certain considerations in establishing and implementing operating procedures specified in technical specifications which take into account the need for operating flexibility and at the same time ensure that the licensee will exert his best efforts to keep levels of radioactive materials in effluents as low as practicable. The Appendix I that we adopt provides more specific guidance to licensees in this respect.

A. The Rule

Section IV of Appendix I specifies action levels for the licensee. If, for any individual light-water-cooled nuclear power reactor, the quantity of radioactive material actually released in effluents to unrestricted areas during any calendar quarter is such as to cause radiation exposure, calculated on the same basis as the design-objective exposure, which would exceed one-half the annual design-objective exposure, the licensee shall make an investigation to identify the causes of these high release rates, define and initiate a program of action to correct the situation, and report these actions to the Commission within 30 days of the end of the calendar quarter. On the basis of reports required by Section 50.36a(2) and Appendix I and any additional information that the Commission may obtain from the licensee and others, the Commission may from time to time require the licensee to take such action as the Commission deems appropriate in the public interest.

These provisions will, we believe, ensure the necessary operating flexibility for light-water-cooled nuclear power reactors and at the same time ensure that

radiation exposures to any individual in an unrestricted area will be at the most a small fraction of exposures permitted by present radiation protection standards.

The licensee is also required (1) to conduct an appropriate surveillance and monitoring program to provide data on quantities of radioactive materials released in liquid and gaseous effluents to ensure that the provisions of this Appendix I are met, (2) to provide data on measurable levels of radiation and radioactive materials in the environment so that the relationship between quantities of radioactive materials released and radiation dosages to individuals can be evaluated, and (3) to identify changes in the use of unrestricted areas so that monitoring programs for evaluating the doses to individuals from principal pathways of exposure can be modified.

It is further provided that, if the data developed in the surveillance and monitoring program described above show the relationship between quantities of radioactive materials released in effluents and the dose to individuals in unrestricted areas is significantly different from that assumed in the calculations used to determine design-objective limits, the Commission may modify the quantities in the technical specifications defining the limiting conditions for operation in the license that authorizes operation of the light-water-cooled nuclear power reactor. If radioactive-iodine design objectives are determined on the basis of conditions existing at the time the reactor is licensed without regard to future land use, an augmented surveillance and monitoring program may be required.

B. Discussion of Section IV of Appendix I

1. Action Levels and Licensee and Commission Action

We expect that the annual releases of radioactive materials in effluents from light-water-cooled nuclear power reactors can generally be maintained within the levels set forth as numerical guides for design objectives. It is certainly expected that the licensee will, under all circumstances, exert his best efforts to keep levels of radioactive materials in effluents from light-water-cooled nuclear power reactors within the design-objective guides. At the same time the licensee should, in our opinion, be permitted some flexibility of operation, consistent with sound considerations of public health and safety, to ensure that the public is provided with a dependable source of power even under unusual conditions of operation that may temporarily lead to releases of radioactive materials higher than those specified as the design-objective guides.

The Regulatory Staff has consistently argued[1,2] that operating flexibility is necessary, especially in view of the very low release levels inherent in the Staff's

[1] Regulatory Staff, Exhibit 1, Tab. 1.

[2] Regulatory Staff, Concluding Statement of Position, pp. 32 and 68-70.

versions of Appendix I. As the record shows, there is some disagreement as to the need for such operating flexibility and a diversity of opinion on the formulation of guidelines in this regard.

The Consolidated Utility Group has argued,[3] "the degree of operating flexibility provided in [the originally] proposed Appendix I is too restrictive and may threaten power system reliability." Similar arguments were presented by the Atomic Industrial Forum,[4] the Gulf General Atomic Company,[5] the Bechtel Power Corporation,[6] Ebasco Services,[7] and the American Electric Power Service Corporation.[8] On the other hand, Consolidated National Intervenors contended that no provisions for operating flexibility were necessary or desirable.[9] Moreover, the State of Minnesota in its final statement[10] argued that there has been no showing by the utilities of a need for operating flexibility, that such provisions for operating flexibility should be deleted, and that the numerical guides for design objectives should be treated as maximum limits never to be exceeded. Nevertheless, Minnesota recommended guidelines for limiting conditions for operation.

The evidence shows that there will be variations in the performance of fuel elements and radwaste equipment; that these variations may, on a transient basis, result in levels of radioactivity in effluents which exceed the design-objective guide values, and that operational flexibility, within the very low ranges of release rates involved, is necessary if nuclear reactors are to have adequate reliability as a source of power. The arguments to the contrary are not supported in evidence. Arguments of the several parties that the limiting conditions for operation would be too restrictive were specifically directed to the guidelines originally proposed. In our judgment the guidelines we have adopted are necessary and reasonable.

We have decided to omit the proposed level for initiating Commission action, since the Commission is already free to act and a numerical guide at this point might suggest that the Commission would be inattentive to releases of smaller magnitude.

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[3] Consolidated Utility Group, Statement of Position, p. 16.

[4] Tr., p. 86; Merril Eisenbud, Statement, p. 6.

[5] Final Environmental Statement, p. 61.

[6] Final Environmental Statement, pp. 91-92.

[7] Tr., pp. 109-116.

[8] Letter from Robert S. Hunter to Secretary, U. S. Atomic Energy Commission, Feb. 22, 1972.

[9] Anthony Roisman to Algie A. Wells et al., Feb. 15, 1972.

[10] State of Minnesota, Final Statement of Position, pp. 4-5.

2. Surveillance and Measurements in Operating Plants

Experience with operating light-water-cooled nuclear power reactors and with measuring effluents from these plants was recognized by the Commission as one of the substantial bases on which the as low as practicable provisions of 10 CFR Part 50 were proposed and adopted in 1970.[11] The quantitative data that can be acquired in the future through programs of measurement and surveillance in the plant as well as in the environment have been noted by several participants as being of special importance in implementing the "as low as practicable" policy and Appendix I.

Quantitative measurement of radioactive materials released in effluents has always been required of persons licensed to operate nuclear power plants. Indeed, the amendments to Part 50, published December 3, 1970, require that all such licensees periodically report to the Commission "the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in gaseous effluents. . .and such other information as may be required by the Commission to estimate maximum potential annual radiation doses to the public resulting from effluent releases."[12] It is clear that information derived from actual observation and measurement of environmental factors should be an essential part of the data supplied to the Commission pursuant to paragraph 50.36a(a)(2) cited above.

From the standpoint of ensuring control during reactor operation, measurement of effluents and exposures at the low levels proposed in the hearing record are difficult. Edward P. Radford, testifying for the Consolidated National Intervenors, would prefer higher design-objective doses if that were necessary to make measurement of human dose practicable.[13] This preference for measured confirmation of estimates was shared by other participants. As discussed in Chapter V, the incentives for improving calculational models, which must necessarily be used in establishing design objectives for each reactor, are strong.[14] Measurements at operating reactors are a means for making improvements.[15] We are in sympathy with those who cite the virtues of designing and operating effluent-control systems with the enlightenment of real experience rather than with arbitrarily conservative calculational models. Measured levels of environmental radioactivity are generally small in comparison with values calculated from known or presumed release rates.[16]

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[11] 35 *F.R.* 5414 and 18387.

[12] 10 CFR 50.36a(a)(2).

[13] Edward P. Radford, Testimony on Behalf of National Intervenors: National Intervenors, Exhibit 3, p. 3; Tr., p. 2072; and Tr., p. 2077.

[14] General Electric, Closing Statement, p. 5; Consolidated Utility Group, Statement of Position, pp. 13-14, item 7.

[15] Regulatory Staff, Concluding Statement, p. 16; Lester Rogers, Testimony for the Regulatory Staff, Tr., p. 3409.

[16] Consolidated Utility Group, Statement of Position, p. 36; General Electric, Reply, pp. 16-18.

Deviations of measured from calculated doses are not altogether a result of deficient calculational methods. Measurements of environmental exposures and quantities of radioactive materials in the environs are complicated by the very low concentrations encountered, compared to background, and by the fact that a multitude of factors, many varying in time and space, affect the concentration. Thus the correlation of the best of measurements with the best of calculations is tedious and difficult.[17]

We are not in the position of being able to avoid calculational procedures in implementing the design-objective guidelines of Appendix I or to depend completely on monitoring, measurement, and environmental surveillance to indicate compliance of operating plants. Programs of measurement and surveillance entail cost to the utilities;[18] however, we are assured that surveillance and monitoring are feasible for the more sensitive pathways to radiation exposure.[19] Studies involving environmental measurements are not likely to be of practical value in relating emissions to dosage except in cases of those specific radionuclides and exposure pathways which make major contribution to design objectives;[20] accordingly, licensees should be expected to make environmental studies only of the sensitive pathways.

The pathway of greatest concern is the radioiodine course from air to grass to cow to milk to child. The Commission and the Environmental Protection Agency made a study of this pathway, including a program of independent measurements in the vicinity of three operating light-water-cooled nuclear power plants.[21] This study and further evidence in the record show the practicability of making useful measurements pertaining to the radioiodine pathway in situations in which radioiodine releases are substantial.[22] We have required, by Appendix I, special surveillance measures for such situations and have adopted an implementation policy that should encourage applicants to use the best data available in any case.

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[17] See the discussion of the iodine pathway study in the Final Environmental Statement, Regulatory Staff, Exhibit 21, Vol. 1, pp. 9-16 to 9-21; Regulatory Staff, Exhibit 24; and discussion of this study at Tr., pp. 3522-84.

[18] James M. Smith, Testimony for General Electric, Exhibit 7, pp. 12-21, and Regulatory Staff, Exhibit 26.

[19] General Electric, Closing Statement, p. 41; James M. Smith, Testimony for General Electric; General Electric, Exhibit 7.

[20] National Intervenors, Exhibit 3 (Dr. Radford), pp. 2-3.

[21] Final Environmental Statement, Regulatory Staff, Exhibit 21, Vol. 1, pp. 9-16 to 9-21; Regulatory Staff, Exhibit 24; Tr., pp. 3522-84.

[22] See for example Regulatory Staff, Exhibit 26.

CHAPTER V
IMPLEMENTATION

Two aspects regarding the implementation of Appendix I were considered in the hearing. The manner in which the new rule is applied to existing reactors and to other reactors in various stages of licensing is one problem. This matter, including the question of backfitting, is covered below under the heading "Applicability." The other sense in which implementation was considered concerns the guidance given by the Commission to the Regulatory Staff and to applicants in applying the numerical guidelines to the design objectives of a specific reactor. This is discussed below under the heading "Numerical Guidelines." Appendix I incorporates these two matters in Section V, Effective Dates, and Section III, Implementation, respectively.

A. Applicability

1. The Rule

The guides for limiting conditions for operation set forth in Appendix I shall be applicable in any case in which an application was filed on or after January 2, 1971, for a permit to construct a light-water-cooled nuclear power reactor.

For each light-water-cooled nuclear power reactor constructed pursuant to a permit for which application was filed prior to January 2, 1971, the holder of the permit or a license authorizing operation of the reactor shall, within a period of twelve months from June 4, 1975, file with the Commission:

1. Such information as is necessary to evaluate the means employed for keeping levels of radioactivity in effluents to unrestricted areas as low as practicable, including all such information as is required by Section 50.34a not already contained in his application; and

2. Plans and proposed technical specifications developed for the purpose of keeping releases of radioactive materials to unrestricted areas during normal reactor operations, including expected operational occurrences, as low as practicable.

2. Discussion of Applicability

The "as low as practicable" amendments to 10 CFR Part 50 published on December 3, 1970, (Sections 50.34a and 50.36a) instituted new requirements for: (a) information contained in applications for permits to construct nuclear power reactors; (b) information contained in applications for licenses to operate such reactors; and (c) particular technical specifications to be included in each operating license with respect to operating procedures and reports to the Commission.

These amendments contained no guidance concerning the manner in which the additional information in applications would be considered nor criteria for acceptance of a proposal. Considerations by which licensees would be guided in establishing and implementing operating procedures to be included in technical specifications were included in the amendments.

The requirement that applications for construction permits identify design objectives and the means to be employed for keeping levels of radioactive material in effluents to unrestricted areas "as low as practicable" applies, according to those amendments, to cases in which applications are filed on or after January 2, 1971. Other provisions of the amendments became effective on January 2, 1971.

Neither the language of Section 50.34a nor the accompanying statements of consideration required that persons who already held licenses to operate nuclear power reactors conform to the specific provisions of Section 50.34a—i.e., to submit "design-objectives" for already-constructed facilities. In its original statement of considerations, the Commission stated:[1]

> The Commission believes that, in general, the releases of radioactivity in effluents from light-water-cooled power reactors now in operation have been within ranges that may be considered "as low as practicable".

Rather, the formal imposition of the "as low as practicable" requirement on all categories of licensees and applicants was achieved through the combined application of Sections 20.1(c), 50.34a and 50.36a. Furthermore, while Section 50.36a does not explicitly exclude preexisting licensees from its sphere of applicability, the specific requirements of this section all refer to certain actions that are required of applicants or licensees only under Section 50.34a. One of these is the identification of design objectives, an action which would be untimely for a licensee whose plant is already operating and for which no further modification is planned. It is desirable to provide clear guidance in Appendix I on the procedures by which persons who hold permits to construct or licenses to operate light-water-cooled nuclear power reactors, may comply with the "as low as practicable" requirement.

It should be noted that all licensees who may not otherwise be required to establish design objectives relative to radioactive materials in effluents must establish equivalent objectives with respect to quantities of radioactive material released in effluents in order to comply with Section 50.36a(a)(2).

Appendix I as now adopted contains two types of guidance pertaining to the amendments cited above. The first is concerned with determination of "design objectives" and "means to be employed" that would be acceptable to the Commission.[2] The other is concerned with "limiting conditions for operation"

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[1] 35 *Fed. Reg.* 5414.

[2] 10 CFR 50.34a(a).

to be included in technical specifications.[3] The manner and timing for applying the additional guidelines of Appendix I to various cases are matters that stimulated considerable debate in the hearing.

The essence of the Regulatory Staff's position is:[4]

> ...that the limiting conditions for operation described in Section IV of Appendix I be applicable upon publication to technical specifications included in any license authorizing operation of a light-water-cooled nuclear power reactor constructed pursuant to a construction permit for which application was filed on or after January 2, 1971. For all other operating licenses, technical specifications in conformity with the guides in Section IV should be developed within 24 months from the effective date of Appendix I and included in any license authorizing operation of a light-water-cooled nuclear power reactor. The amendments to Part 50, Sections 50.34a and 50.36a requiring that levels of radioactivity in effluents from light-water-cooled nuclear power reactors [be kept as low as practicable] have been in effect for more than three years and substantial progress has been made by licensees in augmenting radwaste systems. It is the staff's view that 24 months is a reasonable period of time to complete modifications that may be required to meet the Appendix I limiting conditions of operation to be included in technical specifications of operating licenses.

General Electric, in its reply to this Staff proposal, commented only on the merits of backfitting, that is augmenting of plants already constructed or in operation with additional control equipment.[5] They argued that the facts require that the numerical guides of Appendix I, if they are to be consistent with the basic standard, must make special allowance for currently operating plants and that guides and limits that are "as low as practicable" for plants that still exist only on paper must necessarily be lower than "practicable" for plants that can install augmented effluent-treatment systems only on a more costly backfit basis. The Consolidated Utility Group also favored a case-by-case consideration of backfitting.[6]

Although the backfitting issue arose over the part of proposed Appendix I that dealt only with "limiting conditions for operation," it is clear that the implication of this part of Appendix I would have been that persons holding licenses for light-water-cooled nuclear power plants now in operation would have been required to comply with the design-objective provisions as well, even if such compliance involved backfitting.[7] We note that the record shows that some such licensees had already undertaken steps, including backfitting, to comply with proposed Appendix I, even though it was not an effective part of the

[3] 10 CFR 50.36(c)(2) and 50.36a.

[4] Regulatory Staff, Concluding Statement, pp. 73-74.

[5] General Electric, Reply, pp. 34-35.

[6] Consolidated Utilities, Reply, p. 25.

[7] Lester Rogers, Testimony for the Regulatory Staff, Tr., pp. 340-341.

Commission's regulations.[8] The Regulatory Staff agreed, however, that backfitting should be considered on a case-by-case basis.[9]

The record clearly shows that the costs of augmenting an existing plant would generally be substantially greater than the cost of installing similar control equipment in a plant that is still being designed.[10,11] Furthermore, the information on the quantities of radioactive material in effluents of these plants indicates no need for any precipitous action that would be applicable to all existing plants alike.[12] These two factors lead us to conclude that the licenses for existing plants should be considered case-by-case. As noted elsewhere in this opinion, the design-objective guidelines of Appendix I do not preclude an applicant from prosecuting his case on the fundamental definition of the term "as low as practicable" in 10 CFR Sections 20.1(c) and 50.34a(a). Under the terms of Appendix I as presently adopted, a person holding a license to operate an existing plant has no less right to follow such a course. Hence, it is unnecessary and would be redundant to include any statement for this special case specifically permitting a case-by-case evaluation. Likewise, we consider it superfluous to state, in the detail suggested by General Electric,[13] the methods that would be permissible as bases for establishing design objectives. We agree that it would be preferable to base evaluations of design objectives on actual operating experience with the reactor in question in cases where substantial relevant information has been accumulated during plant operations.

The scheduling of compliance with Section 50.36a in the light of the new guidance of Appendix I is a further matter for which varying resolutions were proposed. All parties considering this point in concluding statements agreed that guidelines with respect to both design objectives and limiting conditions for operation should be applicable, as soon as effective, to all cases for which an application for a construction permit was filed on or after January 2, 1971. For all other cases, the Regulatory Staff originally proposed a 36-month period for compliance and finally proposed a 24-month period.[14,15] General Electric proposed that 36 months be allowed for compliance;[16] while the Consolidated Utility Group would set no deadline except for a 12-month period within which holders of permits or licensees would have to file plans with the Commission.[17]

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[8] Tr., p. 4147.
[9] Lester Rogers, Testimony, Tr., pp. 3591-92.
[10] Final Environmental Statement, Vol. 1, pp. 3-4 and 3-5.
[11] Regulatory Staff, Exhibit 25, pp. 4 and 10.
[12] Regulatory Staff, Exhibit 27.
[13] General Electric, Closing Statement, pp. 54-56.
[14] 36 *FR* 11113.
[15] Regulatory Staff, Concluding Statement, p. 35.
[16] General Electric, Closing Statement, pp. 54-57.
[17] Consolidated Utility Group, Statement of Position, pp. A7-A8.

In view of the facts already noted, namely, that there is no hazard presently and generally being imposed by plants that were not licensed in accordance with the specific guidelines of Appendix I, we have concluded that it is reasonable to allow 12 months for development and submission of plans for Commission approval. In arriving at this time allowance, we have little factual evidence from any party as to the time actually needed. The information in the Regulatory Staff's concluding statement on the actions of licensees to comply with "the staff's interim licensing design objectives and guidelines" would have been of little value for this purpose, even if it had been undisputed or a part of the evidentiary record.[18] We believe, however, that with official notice being taken of the times actually elapsed from dates of application to dates of issuance of permits and licenses the period allowed for compliance is adequate.

B. Implementation of Numerical Guidelines

1. The Rule

We have decided that Appendix I should explicitly include Commission guidance to the Regulatory Staff and to other interested persons with respect to the use of conservative or realistic calculational procedures in the application of the numerical guides for design objectives. Accordingly, Section III of Appendix I states that compliance with the guides on design objectives shall be demonstrated by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated, all uncertainties being considered together. Account shall be taken of the cumulative effect of all sources and pathways within the plant contributing to the particular type of effluent being considered. For determination of design objectives in accordance with the guides of Section II of Appendix I, the estimation of exposure shall be made with respect to such potential land and water use and food pathways as could actually exist during the term of plant operation, provided that, if special surveillance measures are carried out, the requirements of paragraph C of Section II with respect to radioactive iodine may be made on the basis of such food pathways and individual receptors as actually exist at the time the plant is licensed. The characteristics attributed to a hypothetical receptor for the purpose of estimating internal dose commitment shall take into account reasonable deviations of individual habits from the average. The applicant may take account of any real phenomena or factors actually affecting the estimate of radiation exposure, including the characteristics of the plant, modes of discharge of radioactive materials, physical processes tending to attenuate the quantity of

[18] Regulatory Staff, Concluding Statement, p. 73 and Annex.

radioactive material to which an individual would be exposed, and the effects of averaging exposures over times during which determining factors may fluctuate.

If the applicant determines design objectives with respect to radioactive iodine on the basis of existing conditions and if potential changes in land and water use and food pathways could result in exposures in excess of the guideline values of paragraph C of Section II, the applicant shall provide reasonable assurance that a monitoring and surveillance program will be performed to determine:

(a) The quantities of radioactive iodine actually released to the atmosphere and deposited relative to those estimated in the determination of design objectives;

(b) Whether changes in land and water use and food pathways which would result in individual exposures greater than originally estimated have occurred; and

(c) The content of radioactive iodine in foods involved in the changes, if and when they occur.

2. Discussion

The numerical guidelines of Appendix I, when applied in accordance with the conditions specified therein, are a quantitative expression of the meaning of the requirements that radioactive material in effluents released to unrestricted areas from light-water-cooled nuclear power reactors be kept as low as practicable. These guidelines, particularly with respect to design objectives, are expressed as specific numerical limits for three types of effluents. The numerical aspects of this translation of the basic rule of Section 50.34a, standing alone, are clearly a compromise of the rule in the sense that a quantitative level that might be precisely as low as practicable in one case would not necessarily be so in another. The numerical guidelines were chosen on the basis that the record shows these limits to be practicably achievable for almost all cases to which we consider them applicable. Furthermore, in view of the elements of conservatism and realism inherent in the evaluations presented in the hearing, we believe the record supports the conclusion that the maximum individual exposure likely to ensue from operation of nuclear power reactors in conformance with Appendix I is sufficiently small that no additional expense could be justified for reducing the exposure of an individual further than required by Appendix I.

It must be understood in discussing the matters of calculational conservatism and realism that Appendix I means, implicitly, that any facility that conforms to the numerical and other conditions thereof is acceptable without further question with respect to Section 50.34a. It is just as essential that Appendix I be understood as not implying, conversely, that any facility not conforming is necessarily unacceptable. The numerical guidelines are, in this sense, a conservative set of requirements and are indeed based upon conservative evaluations.

The numerical guideline values were adopted in the light of numerous evaluations of typical nuclear plants at various types of sites. These evaluations, presented by various parties, were based on calculations of radiation doses which generally could be understood as estimates of the level of exposure of individuals in the general public from hypothetical releases of radioactive material. Similar estimates will have to be made on a case-by-case basis by applicants for licenses for light-water-cooled nuclear power reactors in order to establish appropriate design objectives. Thus the use of calculational procedures based at least partially upon hypotheses is unavoidable.

It is evident from the record that numerical estimates of radiation exposure may vary widely, depending upon the particular assumptions made. These assumptions involve the selection of appropriate mathematical expressions of natural phenomena, including the assignment of numerical values to the parameters contained in the expressions. Inasmuch as results of calculations can vary widely, an issue has been raised by some participants as to how the numerical guidelines can be implemented in consonance with the process of their adoption. The necessity and importance of adequate attention to numerical calculational procedures was aptly expressed by Hearing Board member Walter H. Jordan:[19] "[t]he interpretation of Appendix I is almost going to be as important a factor in what is practicable as the regulation itself."

Some parties severely criticized the conservatism of the Regulatory Staff and proposed that Appendix I include guidance on implementation in order to ensure that applicants have the opportunity to use reasonably realistic assumptions in their procedures for estimating radiation exposure.[20-22] The necessity of explicit guidance is suggested in the argument that the procedures used by the Regulatory Staff for calculating doses show a predisposition to make unnecessarily conservative assumptions. The draft Regulatory Guides circulated by the Directorate of Regulatory Standards with the Staff's concluding statement reflect a tendency toward the use of unnecessarily conservative calculational assumptions. The calculational methods described in the Final Environmental Statement and in draft Regulatory Guides are opposed in some particulars;[23] furthermore it was also argued that the Staff has, in the course of reactor licensing actions, generally been quite conservative in its quantitative assessment of effluent controls.

Particular areas of controversy shifted as the hearing progressed.[24] It was not clear to participants whether or not models and assumptions used in the

[19] Tr., pp. 2547-48.

[20] General Electric, Closing Statement, pp. 26-45, Reply, p. 10.

[21] Consolidated Utility Group, Statement of Position, pp. 13-14, 71, and A-4.

[22] Andrew P. Hull, Final Statement of Position, p. 4.

[23] Closing Statement of General Electric and Statement of Position by Consolidated Utility Group referenced above; see also Testimony in General Electric, Exhibits 6 and 7 and the Oral Argument, Tr., pp. 110-127.

[24] Consolidated Utility Group, Statement of Position, p. 44.

Final Environmental Statement were also intended by the Regulatory Staff to be applicable to the analysis of individual applications for licenses in the implementation of Appendix I. Examples of allegedly unnecessarily conservative implementation methods, as they have been used in current licensing, include: excessive source-term assumptions with regard to radioiodine emissions; neglect, with regard to such emissions, of their chemical form, actual release points and modes, and expected plume behavior; overestimation of deposition rates and retention factors for radioiodine on forages; and postulation of nonexistent dairy cows and unrealistic milk-consumption patterns.[25]

Following the filing of the Regulatory Staff's concluding statement, General Electric noted what it believed to be important improvements in the Staff's proposed Appendix I, including some dealing with calculational models; but GE further noted that the Staff's proposed Appendix I still failed to specify whether the calculational assumptions and models to be used in implementation are to be established on a "conservative" basis or, as GE urged, on the basis of best-estimates of the relevant physical phenomena.[26]

The Staff argued neither for nor against including guidance on calculational assumptions in Appendix I, although in testimony the Staff's principal witness conceded that particularly critical points had been raised in the hearing with respect to implementation and that at the time of issuance of Appendix I some specific understanding should be attained.[27]

We believe the evidence at hand supports the decision that Appendix I should include Commission guidance respecting the use of conservative or realistic calculational procedures in the application of the numerical guides for design objectives. We summarize below the matters involved in reaching this conclusion and in applying the guidelines in accordance with Commission intent.

Calculational procedures used in the application of Appendix I for making the numerical estimates of radiation doses have been variously called by such terms as "calculational assumptions and models," "models and input data," "assumptions and models," or simply "models." Such procedures require the skillful use of mathematical expressions characterizing natural phenomena. It is evident that such expressions are generally expected to yield quantitative results that are, at best, approximations to reality. Some models are capable of providing estimates more relevant to real situations than are models which are conceived to describe an idealized case. Simpler models, for example, ones that would lack facilities for taking into account differences in plant design, would not be expected to produce estimates as close to reality for a wide variety of designs as would more complex models.

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[25] General Electric, Closing Statement, p. 5.

[26] General Electric, Reply, pp. 2-3.

[27] Lester Rogers, Testimony, Tr., p. 3412.

Calculational procedures used for dose estimations in essence describe, albeit approximately:

(a) Sources of radioactive materials and the pathways inside a plant by which such materials are released;

(b) The natural processes by which released material is transported through the environs; and

(c) The model receptor, i.e., a real or hypothetical individual ultimately exposed to radiation.

The selection of specific models for each of these three portions of the procedure involves two types of determinations. First, one must select models and data that represent the situation deemed to be important. For example, the choice of a hypothetical receptor rather than an existing individual might reflect, in part, the intent to use the guidelines as a mechanism to provide for future changes in occupancy of areas near the site. The Regulatory Staff properly identifies this as a means of expressing regulatory intent.[28] Second, models and data must be found which represent the physical phenomena involved with some useful precision. Conflicting views have been advanced, in evidence and in argument, on all portions of the calculational procedures and for both types of selections.[29-33]

It was observed by both General Electric and the Consolidated Utility Group that considerable progress toward agreement on models was made in the course of the hearing, although the intent of the Regulatory Staff in future implementation of the numerical guidelines on a case-by-case basis remained in doubt after the Staff's concluding statement was filed.[34] We believe we have developed a suitable resolution of the differences for all practical purposes. Our resolution strongly favors the suggestions that calculational methods be realistic, which in turn has influenced our adoption of particular numerical guideline values for dose objectives. This resolution, thus, has been a strong factor in our reconciliation of the differences among parties as to those values for, as one party stated:[35] "The evidence is clear that, realistically applied, the dose objectives now presented in [the Staff's proposed] Revised Appendix I can be met without reliance on exceptions or special provisions. . . ."

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[28] Regulatory Staff, Closing Statement, p. 52.

[29] General Electric, Closing Statement, pp. 26-45.

[30] Ned R. Horton, Testimony, General Electric, Exhibit 6.

[31] James M. Smith, Testimony, General Electric, Exhibit 7.

[32] Oral Argument, Tr., pp. 110-127.

[33] Consolidated Utility Group, Statement of Position, pp. 13-14 and 71.

[34] General Electric, Reply, p. 2.

[35] General Electric, Reply, p. 24.

The essence of our conclusions on how calculational procedures should be used in determining design objectives is given in the five following points.

(1) An applicant should be free to use as realistic a model for characterizing natural phenomena, including plant performance, as he considers useful. An applicant may take into account situations not adequately characterized by such standardized models as may be available with respect to specific features of plant design, proposed modes of plant operation, or local natural environmental features which are not likely to change significantly during the term of plant operation.

General Electric noted several effects that should be recognized,[36] and we restate some of them here to illustrate natural phenomena that might be partially or entirely neglected in standard models but could be properly considered:

(a) radioisotopic composition of effluents;

(b) radioactive decay of released nuclides prior to exposure of the receptor;

(c) waterway flow and the associated diffusion and dilution;

(d) removal of radioactive material from solution or suspension in the water by sedimentation or other naturally occurring mechanisms or by water-treatment processes;

(e) exposure modes and occupancy or use factors;

(f) release conditions (to the atmosphere) including elevation of release point, effluent stream buoyancy and momentum, and building geometry;

(g) local meteorological and aerodynamic conditions influencing airborne effluent plume dispersion;

(h) beta and gamma radiation energies for the radioisotopes released and the associated dose effects;

(i) chemical form and physical behavior of the effluent constituents;

(j) plume elevation, size, and depletion;

(k) shielding effects;

(l) partitioning, filtration, and other retention and depletion effects;

(m) deposition rates and velocities for the various chemical forms of released radioiodine on offsite vegetation, ground, and other surfaces, with appropriate apportionment to the vegetation of its capture fraction; and

(n) weathering and other loss factors for radioiodine on grass and other vegetation.

Clearly other natural phenomena must also be adequately taken into account in models used for determining design objectives, but these are sufficiently established in practice that they need not be repeated here.

Although both General Electric and the Consolidated Utility Group asserted that the Regulatory Staff's intentions are uncertain, Staff testimony clearly shows that case-by-case consideration of realistic models different from standard

[36] General Electric, Concluding Statement, pp. 28-32.

models is an acceptable practice.[37] In their concluding statement the Staff quoted from the statement published with each Regulatory Guide:[38]

> Regulatory Guides are not substitutes for regulations and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a permit or license by the Commission.

The models last proposed by the Regulatory Staff[39] are different from the highly criticized versions used in the evaluations presented in the Final Environmental Statement.[40] Testimony of the Staff indicates that the models used by the Staff and described in Regulatory Guides will continue to change.[41] We believe Regulatory Guides to be useful; however, Regulatory Guide models should not be applied as a norm to be abandoned at the peril of the applicant. We believe the testimony of Staff witnesses in this hearing might, by some reasonable persons, indeed be construed as indicating that the Staff has been excessively zealous in applying Regulatory Guide models. We particularly expect all parties to licensing actions to which Appendix I applies to note both the potential utility of Regulatory Guides and their subordinate status relative to Commission regulations and opinions.

(2) Where selection of data is strictly a matter of interpreting experimental evidence, both the applicant and the Regulatory Staff should use prudent scientific expertise to select those values which would be expected to yield estimates nearest the real case.

The matter of how to deal with uncertainties in choosing data has been an implicit part of the evaluations made by participants in the hearing. The data used by the Staff in the evaluations presented in the Final Environmental Statement were considered by General Electric and the Consolidated Utility Group to be overly conservative.[42-45] The Staff has conceded that conservatisms existed and were being reevaluated continually.[46] It is our judgment in consideration of the detailed discussions of the models and data in testimony, in closing statements, and in oral argument that specific models and data should

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[37] Lester Rogers, Testimony, Tr., pp. 3391, 3411; Peter O. Strom, Tr., p. 3447; Earl H. Markee, Tr., p. 3380.

[38] Regulatory Staff, Concluding Statement, p. 83.

[39] Attachment to Concluding Statement of Position of the Regulatory Staff.

[40] Regulatory Staff, Exhibit 21.

[41] Lester Rogers, Tr., p. 3409.

[42] General Electric, Closing Statement, pp. 5 and 29-43.

[43] Ned R. Horton, Testimony, General Electric, Exhibit 6.

[44] Consolidated Utility Group, Statement of Position, pp. 13-14 and 42-50.

[45] Walton A. Rodger, Testimony, Tr., 3909.

[46] Lester Rogers, Testimony, Tr., pp. 3409, 3439-40, and 3460; Earl H. Markee, Tr., pp. 3432-33; and John T. Collins, Tr., pp. 3449-52.

not be standardized by incorporation in Appendix I, as proposed by the State of Minnesota.[47] Neither do we intend to judge in this decision which of the many controversial parameter values would be particularly appropriate for use in implementing the design-objective guidelines. We believe that the opportunity to modify models and data as new experimental information comes to light could have substantial advantages over a rigid rule, which is a persuasive argument for permitting this matter to be dealt with by the preparation of Regulatory Guides and by case-by-case evaluations.

(3) If approximations implicit in a model can produce a deviation from the true result the direction of which is either uncertain or would tend to underestimate dosage or if available experimental information leaves a substantial range of uncertainty as to the best estimate of some parameter values, or both, data should be chosen so as to make it unlikely, with all such deviations and uncertainties taken into account together, that the true dose would be underestimated substantially.

Two potential sources of deviation from a realistic dose estimate are of concern here. One is the use, at an applicant's preference, of a simplified model, which necessitates, in good judgment, the use of some conservatism in setting design objectives. The other is the existence, in spite of the best efforts of all parties, of experimental uncertainties in parameter values.

Mathematical models describing the various sequences of natural phenomena which relate releases of radioactive material to radiation dose vary in detail and complexity. This was frequently observed in the hearing. Through circumstances peculiar to his case, one applicant may be able to present to the Regulatory Staff adequate support for his proposal through the use of simple models and conservative parameter values, while another applicant cannot prove his case so easily. There is no regulatory necessity for performing the most realistic dose estimates that are technologically achievable if a less complex and less expensive analysis can be made to demonstrate compliance with licensing requirements. The use of the simpler procedure may, however, introduce a wider range of uncertainty in estimated doses than a more complicated analysis. Hence the proper choice of parameter values for a simple calculation might be more conservative than values appropriate for a more precise calculation.

The matter of dealing with uncertain data was discussed at several points in the oral arguments.[48] There was an apparent reluctance of participants to express in concise language a general definition of the degree of conservatism or realism considered appropriate or a precise definition of "best estimate." We also are reluctant to propound a precise general rule on this point because the situations presented vary too widely to permit us to do so. The record shows

[47] State of Minnesota, Concluding Statement, p. 11.

[48] Oral Argument, Tr., pp. 21, 35-40, 104-110, and 129-130.

that the quality and quantity of experimental data are far from uniform from case to case, site to site, and phenomenon to phenomenon.

The models described in the hearing record and the evidence and arguments advanced with regard to numerical estimation of dose lead us to the conclusion that one should try to attain realistic estimates; but, where uncertainties exist, one should choose calculational procedures that are unlikely to produce substantial underestimates. We believe, furthermore, that it is in the best interest of the public to make realistic estimates, even with uncertain data, and to depend upon the programs for improving models and data, particularly programs of in-plant measurements, to determine whether proper case-by-case design decisions were made.[49] Surveillance and quantitative monitoring of effluents are already required by existing regulations; additional guidelines for collection of data for each operating plant necessary for this purpose are included in Appendix I.

(4) The models used in describing effluent releases should take into account all real sources and pathways within the plant; and the estimated releases should be characteristic of the expected average releases over a long period of time, with account taken of normal operation and anticipated operational occurrences over the lifetime of the plant.

The record is free from significant controversy as to the general model of an operating plant which should be assumed for the purpose of determining design objectives. The schedule of operation assumed by an applicant, if it turns out to be unrealistic, may later impose some inconvenience or expense on him through the influence of limiting conditions of operation adopted in accordance with Appendix I. This possibility is one to which the applicant would normally be sensitive, but it would not diminish the protection of the public from the effects of radioactive discharges.

(5) The model of the exposed individual and the assumed characteristics of the environs with respect to human occupancy and to land and water use should be determined in each case in accordance with the intent indicated below for each particular category of effluent for which design-objective guidelines are given.

(a) For design objectives affected by assumptions as to consumption of water or food (other than milk) produced in the environs, one should consider the model individual to be that hypothetical individual who would be maximally exposed with account taken only of such potential occupancies and usages as could actually be realized during the term of plant operation.

(b) For design objectives affected by exposure as a direct result of human occupancy (immersion exposure), the model individual should be

[49] Regulatory Staff, Concluding Statement, pp. 60-61.

the hypothetical individual maximally exposed with account taken only of such potential occupancies, including the fraction of time an individual would be exposed, as could actually be realized during the term of plant operation.

We are persuaded by the evidence that, at most sites with realistic modeling of the natural phenomena affecting these exposure pathways, design objectives based on reasonable occupancy times and intake values could conform to guideline values at reasonable cost of control, even for a hypothetical receptor.[50]

The Consolidated Utility Group presented substantial evidence, as an extension of Regulatory Staff evaluations presented in the Final Environmental Statement, to establish a level of effort they consider to be "justified on a cost-benefit basis." They concluded that in-plant controls for liquid effluents augmented as justified on a cost-benefit basis in terms of population dose reduction would meet the individual whole-body dose objective of 5 millirems.[51] We note that the Consolidated Utility Group presented further conclusions, after the evidentiary hearing concluded, that certain lakeshore and seacoast situations would require unjustifiably costly augments to conform to the guidelines for liquid effluents if "the staff's conservative dose models" were used.[52] While we are not adopting their opinion as our own, this conclusion and the further conclusions of the Consolidated Utility Group in this same place[53] with respect to justification of noble-gas effluent controls, when considered with the numerical guidelines of Appendix I now issued, point to a fortunate capacity to control effluents from the light-water-cooled reactors in most expected circumstances on the basis of a hypothetical individual.

We considered and rejected the possibility of specifying that all design objectives be determined solely on the basis of actual human occupancy at the time of plant design, as was proposed by the Consolidated Utility Group.[54] To adopt guidelines that would generally leave all consideration of future use of the environs to post-licensing regulation would be unwise in the instances where it has been clearly shown that an accommodation of reasonable potential future uses can be accomplished at reasonable cost. This is the case for all effluents except radioactive iodines and particulates released to the atmosphere. We believe the record shows it would be better in these instances to determine the design objectives with respect to potential future uses. This takes not only the economic balance into account but also the less tangible but equally important values of environmental quality and protection of the individual.

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[50] General Electric, Reply, p. 24.

[51] Regulatory Staff, Statement of Position, p. 33.

[52] Consolidated Utility Group, Reply, pp. 15-17.

[53] Consolidated Utility Group, Statement of Position, items 2 and 3, pp. 33-34.

[54] Consolidated Utility Group, Statement of Position, items 2 and 3, p. A-4.

We have taken into account the fact that the analyses that have led to such a general conclusion were based on conservative hypotheses. We are mindful, as already mentioned, that numerical guidelines cannot coincide exactly with the effects of measures that are "as low as practicable" in every case. Therefore, the Appendix I guidelines should not and do not prohibit an applicant for whom the guidelines are not practicable from proceeding on the basis of the definition of "as low as practicable" alone. We anticipate that some special circumstances may arise which would make it advantageous to the applicant to base his case principally on a cost-benefit analysis. Such circumstances may involve: currently operating reactors for which the cost-benefit status of equipment augments is highly site-dependent and differs substantially from that for plants in the design stage; multi-reactor sites to which certain environmental and economic considerations not fully explored in the hearing may apply; or unique or highly unusual sites or reactor installations.[55] We believe this option will provide adequate relief in such cases. The record shows that licensees are generally willing to include a requirement that all in-plant control measures which can be justified by a cost-benefit analysis for a particular site be included.[56]

There is substantial controversy in the record on the proper assumptions respecting such factors as the location of the source of drinking water, the habitat of fish caught and consumed locally, and individual intake of water, fish, and other foods. Some of these assumptions, in our view, are in the realm of natural phenomenology and, therefore, should be dealt with in accordance with points 1-3 above. For example, dilution of effluents in receiving waters, fish habits, and normal human intakes of food and water should be considered on the basis of scientifically evaluated experimental evidence.

We do believe, however, that the particular habits of the hypothetical receptor should take into account a reasonable and real departure of the habits of some people from the average. We do not think it reasonable, on the other hand, to assume such bizarre characteristics as those of a hypothetical gardener who receives all his fresh vegetables from a hypothetical fence-post garden and consumes them immediately upon harvesting without washing or other processing, as was assumed for some of the evaluations of the Final Environmental Statement.[57]

Such extreme assumptions have served their purpose in simplifying the evaluations involved in reaching a decision on Appendix I but would not be appropriate in case-by-case implementation of the guidelines. With realistic calculational models, food chains, and occupancy taken into account, we believe the record shows that one should and can account for persons who are not average, even in a local sense.

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[55] General Electric, Reply, pp. 23-24.

[56] Consolidated Utility Group, Reply, p. 10.

[57] Tr., pp. 3402-03 and 4329-30.

(c) For design objectives relative to thyroid dose as affected by consumption of milk, the iodine pathway through the environs of a plant and the characteristics of the model receptor should be essentially as they actually exist at the time of licensing.

There was strong agreement among participants throughout much of the hearing that the iodine pathway leading to thyroid exposure through consumption of milk would be the most difficult one to accommodate in the context of originally proposed numerical guidelines for establishing design objectives. At this time it is still an exceptional case. The estimated economic costs of instituting in-plant controls of iodine emissions are high enough to change the overall balance of the decision in favor of requiring that only actually existing food pathways need to be taken into account. Of course, this does not deny to any applicant who considers it practicable the privilege of assuming more conservative hypothetical pathways and thus avoiding the task of keeping up in detail with future changes in the environs.

Many elements of conservative estimates of radiation exposure discussed in points 1 to 4 above were of serious concern to the parties only with respect to the iodine-milk-thyroid pathway. The implementation guidance respecting attainment of more realistic estimates will permit many plants to conform to the thyroid-dosage guidelines irrespective of whether a real or hypothetical environmental pathway is the basis of design objectives. Nevertheless, on the basis of present knowledge of the entire pathway from in-plant source to receptor, there would be many plants that could not meet the numerical guideline on the basis of a hypothetical food pathway to an individual without in-plant controls the cost of which outweighs the incremental benefit to the population at large.

In adopting this guideline for radioactive iodines and particulates discharged into the atmosphere, we have considered the following special questions:

Is every individual adequately protected from excessive exposure? Is individual freedom of access and use of unrestricted areas assured? Is the likely cost of implementation in this way less than that of providing additional in-plant controls at the outset? Is the possible curtailment of future productivity of the environs justifiable?

The record supports an affirmative answer to each of these questions. Individual protection for real persons is accomplished by existing radiation protection standards; the design objectives adopted here for as low as practicable purposes for each reactor amount to only 1% of the radiation protection guides recommended by the Federal Radiation Council. Special requirements for surveillance are included to detect any important changes in land uses that would lead to exposures that exceed these design objectives. If such changes were to occur, the licensee, not the member of the public, would be obligated to

take appropriate action, namely, to control emissions or other elements of the exposure pathway in such a way as to maintain individual exposures in conformance with design-objective guidelines. Thus an individual would be free of any infringement upon his rights to use the environs.

The practicability of deferring some controls until real necessity is imminent is evident from the evaluations of the Regulatory Staff, General Electric, and the Consolidated Utility Group. Such a course was recommended in the closing statements of these three parties. General Electric expresses the principal arguments in one place as follows:[58]

> In the extremely rare instance where, after licensing, plans are developed and actions are taken to bring about such production and consumption patterns, doses as large as those predicted by the staff will, in all probability, still not result because the design margins customarily built into LWR equipment will normally cause actual emissions to remain below their design basis values. . . . Even if doses exceeding the numerical guides should result, reasonable and inexpensive steps would almost certainly be available at that time to reduce such exposures without the necessity of expensive equipment augmentation such as that which the staff's approach would mandate in each instance during initial plant construction.

Furthermore the evidence shows that with additional experience and data from operating plants the most likely result will be that estimates based upon present-day models and assumptions are unrealistically high.[59] This factor will be of transitory value, however, in providing a buffer against having to backfit because, as models used at the time of plant design become more realistic, there is less chance of proving significant improvement in computational methods with further experience. It is our judgment, therefore, that the most beneficial use of resources in control of these particular effluents will be attained by permitting the use of actually existing pathways in determining design objectives for radioactive iodine release to the atmosphere.

It should be noted that it would be permissible for a licensee to effect compliance with Appendix I by making arrangements with persons holding land rights in the vicinity of a nuclear plant so as to control or restrict the production

[58] General Electric, Closing Statement, p. 35. See also further argument on pp. 39-41.

[59] See Regulatory Staff, Final Environmental Statement, Vol. 1, p. 9-16; Regulatory Staff, Exhibit 24; Henry L. Loy, Testimony, General Electric, Exhibit 4; Paul R. Hill, Exhibit 5; and Paul R. Hill and James M. Smith, Tr., pp. 3750-93.

and consumption of milk. The impact of any such controls on the potential productivity of a local region would, at worst, be negligible.

By the Commission

Samuel J. Chilk
Secretary of the Commission

Dated at Washington, DC
this 30th day of April, 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-264

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Richard S. Salzman, Chairman
Dr. W. Reed Johnson, Member

In the Matter of

Docket No. 50-410

NIAGARA MOHAWK POWER CORPORATION

(Nine Mile Point Nuclear Station, Unit 2)

Mr. Lex K. Larson, Washington, D. C., argued the cause for the applicant Niagara Mohawk Power Corporation; with him on the brief was Mr. Eugene B. Thomas, Jr., Washington, D. C.

Mr. Richard I. Goldsmith, Syracuse, N. Y., argued the cause and filed a brief for intervenors Suzanne Weber and Ecology Action.

Mr. William Massar argued the cause for the Nuclear Regulatory Commission Staff; with him on the brief was Mr. Bernard M. Bordenick.

Upon intervenors' exceptions to an initial decision authorizing permit to build a nuclear powered generating facility, the Appeal Board rules that the weight of the evidence shows a need for the power to be generated by the facility and that the Licensing Board properly considered and rejected energy conservation measures as alternatives to its construction; intervenors' request for attorneys' fees and expenses denied as premature.

Initial decision affirmed.

Motion for fees and expenses denied without prejudice.

NEPA: SCOPE OF INFORMATION REQUIRED FOR LICENSING—NEED FOR POWER

A determination that there is a need for the electricity to be produced by a nuclear facility, an essential element for approval of a license, may rest on a

showing that the facility is required as a substitute for generating plants dependent on fossil fuels in short supply or which could be put to better use, as well as upon proof of a need for additional generating capacity. See *Vermont Yankee Nuclear Power Corporation* (Vermont Yankee Nuclear Power Station), ALAB-179, RAI-74-2 159 at 175 (February 28, 1974).

RULES OF PRACTICE: OPPORTUNITY FOR PARTIES TO ADDRESS ISSUES RAISED BY LICENSING BOARD

A licensing board may rest its decision on legal theories other than those presented by the parties; before doing so, however, it must afford them a fair opportunity to present argument and, if necessary, evidence on the new theory.

RULES OF PRACTICE: APPELLATE REVIEW

An agency, like a court, need not decide questions which are not relevant to its decision.

RULES OF PRACTICE: APPELLATE REVIEW

A successful party before the Licensing Board may urge that its decision be sustained on appeal on any ground which finds support in the record, even where the ground has been rejected or disregarded by the Board.

RULES OF PRACTICE: APPELLATE REVIEW

Appeal Board may reject or modify a Licensing Board's findings if convinced that the record compels a different result.

NEED FOR POWER: FORECASTING FUTURE DEMAND

Econometric analysis is a permissible method for forecasting future electric power demands provided the data and the assumptions supporting the analysis are demonstrably valid.

NEED FOR POWER: FORECASTING FUTURE DEMAND

Forecasts of future electric power demands contain a margin of uncertainty which must be taken into consideration in evaluating them.

NEED FOR POWER: APPLICABLE STANDARD

Given the uncertainties inherent in projections of future power demands, a licensing board should inquire whether it can fairly be concluded on the evidence presented to it that a particular projection is a reasonable one.

RULES OF PRACTICE: AMENDMENT TO FINAL ENVIRONMENTAL STATEMENT

Under Commission rules, a licensing board's re-evaluation of environmental alternatives is deemed to modify the Final Environmental Statement. Where the modification reflects an agency's consideration of suggested changes to a Draft Statement previously circulated, NEPA does not require recirculation of the Final Statement.

RULES OF PRACTICE: REQUEST FOR AWARD OF ATTORNEYS' FEES

Intervenors' request for an award of attorneys' fees and expenses is premature where the Commission's authority to grant such a request, and the terms and conditions under which a grant might be made, are the subjects of a rule-making proceeding. Denial of such request without prejudice to renewal when the Commission rules on the subject adequately protects whatever rights intervenors may have to an award.

DECISION

April 8, 1975

This is a joint appeal by intervenors Suzanne Weber and Ecology Action seeking review of an Atomic Safety and Licensing Board decision sanctioning the award of a construction permit under the Atomic Energy Act to the applicant, Niagara Mohawk Power Corporation. LBP-74-43, RAI-74-6, 1046 (June 14, 1974). The permit authorizes the applicant to build Nine Mile Point Nuclear Station, Unit 2, between two existing nuclear power plants in a 1600-acre area reserved for such facilities on the south shore of Lake Ontario in Oswego County, New York.[1] The proposed new facility would utilize a boiling water reactor to generate nearly 1100 megawatts in net electrical output.[2]

[1] Niagara Mohawk's existing nuclear generating facility, Nine Mile Point Unit 1, would be about one thousand feet to the west and the New York Power Authority's James A. FitzPatrick nuclear power plant would be about half a mile east. RAI-74-6 at 1049.

[2] The construction permit (No. CPPR-112) was issued on June 24, 1974. See 39 *F. R.* 24045. Applicant's counsel advised us at oral argument on December 4, 1974 that construction of the facility has not begun and is not expected to be undertaken before 1976. (App. tr. 70.)

I. THE PROCEEDINGS BELOW

The Commission[3] caused notice of Niagara Mohawk's application to be published in the *Federal Register* and referred the request to a Licensing Board for public hearing.[4] The intervenors were parties to that proceeding, where they opposed construction of the nuclear facility. Pertinent to this appeal are their contentions below that (1) additional electric generating capacity is not now needed in Niagara Mohawk's service area with the result that the environmental costs of the nuclear power plant outweigh its benefits; and (2) energy conservation alternatives to the nuclear facility were not given sufficient consideration. Intervenors' thesis is that authorizing Nine Mile Point Unit 2 to be built in these circumstances contravened the National Environmental Policy Act of 1969 (NEPA) and the Commission's regulations implementing that statute.[5]

The principal disagreement on the "need for power" issue concerns at bottom when Niagara Mohawk must have additional generating capacity to satisfy reserve margin requirements to which it is subject. The parties submitted conflicting predictions to the Licensing Board. The applicant and staff, relying on demand forecasts extrapolated from records of electric power use in the applicant's service area over the years 1960-71, designated 1979 as the year the facility would be necessary to meet the reserve margin requirements. (The applicant represented that it expected to have Unit 2 on line by late 1978.[6]) Intervenors' witnesses, using a similar method of historical extrapolation but with 1965-1972 and 1967-1972 as the base periods, projected the most likely year of need as 1981-1987, depending upon how "need" was defined for this purpose. Intervenors also introduced an "econometric demand analysis" (the term derives from "mathematical economics") as an assertedly more accurate means of predicting future power demand. This forecast was based on relationships assumed by them to exist between demand for electricity and such variables as per capita income and the price of alternative fuels, among others. According to that analysis, the earliest Nine Mile Point Unit 2 would be needed to satisfy the Public Service Commission's requirements would be 1992.

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[3] As required by the Atomic Energy Act, 42 U. S. C. §§2131-33, Niagara Mohawk applied to the former U. S. Atomic Energy Commission for a construction permit on June 15, 1972. Thereafter, the Energy Reorganization Act of 1974 (Act of October 11, 1974, P. L. 93-438, 88 Stat. 1233, 42 U. S. C. A. § 5801) abolished the A. E. C., established the Nuclear Regulatory Commission, and transferred the A. E. C.'s licensing functions under the Atomic Energy Act (including those performed by the Atomic Safety and Licensing Boards and the Atomic Safety and Licensing Appeal Boards) to the new Commission. For convenience, we use the term "Commission" in this opinion to refer to both the A. E. C. and the N. R. C.

[4] 37 *F. R.* 20089 (September 23, 1972).

[5] 42 U. S. C. §§ 4321 *et seq.* and 10 C. F. R. Part 50, App. D (1974), the regulation which governed at the time in suit.

[6] Applicant's Supplementary Proposed Findings, February 7, 1974, p. 11.

The Licensing Board appears to have held that a specific "year of need" must be shown with a "reasonable degree of certainty" before additional generating capacity could be accepted as a "benefit" for NEPA purposes. Faulting all the demand projections as taking inadequate account of increasing costs and uncertain availability of fossil fuels (which would support an early need for the nuclear plant) and the impact of energy conservation measures (which would tend to reduce the immediacy of the need for additional generating capacity), the Board concluded that the "forecasts of the parties do not provide a reliable basis for determining the year of need for Unit 2." RAI-74-6 at 1067. It therefore declined to accept Unit 2's added generating capacity as a "benefit" which justified its construction. RAI-74-6 at 1083-84.

The Licensing Board members were of different minds, however, about the consequences of that ruling for this case. The majority went on to find that, whether or not Niagara Mohawk needed *more* generating capacity, the utility needed the nuclear facility as a *substitute* for its fossil-fuel fired plants. They found the latter's operations subject to increasing fuel costs and possible curtailment should oil shortages recur, distinct possibilities in their view. The majority therefore ruled that Unit 2's availability to substitute for existing conventional fossil facilities was a benefit sufficient to justify its construction at this time. Initial Decision, Part F, RAI-74-6 at 1083-84.

All parties' presentations about the effect energy conservation measures might have on the need for additional power were also criticized. Although it was found that actual peak demands for electric power below applicant's predictions for the 1973-74 winter months were attributable in part to conservation measures, the evidence of the effectiveness of such measures was judged inconclusive as to the past and speculative as to the future. The majority ruled, however, that their finding the proposed nuclear facility needed to substitute for fossil fuel plants, whether or not also needed to meet increased power demands, made it unnecessary to determine the effectiveness of conservation practices in this case. RAI-74-6 at 1079-81.

The Board Chairman disassociated himself from the "need for power" portion of the Board's opinion and the findings supporting it. Dissenting from the majority's decision to authorize the construction permit, the Chairman urged that approval be delayed for one year and then be reconsidered. In his view, better evidence could be developed in the interim regarding the need for Nine Mile Point Unit 2, including the effects, if any, of energy conservation measures on that need. RAI-74-6 at 1088-91.

Intervenors had also raised before the Licensing Board a number of radiological health and safety issues as well as additional environmental contentions, all of which the Board below resolved against them. Intervenors have acquiesced in the Licensing Board's rulings on those issues.[7] Accordingly,

[7] Intervenors' brief on appeal, pp. 1-3.

they have limited their appeal to the environmental issues we discuss in Part II, following. In Part III we deal with intervenors' request for an award of litigation costs, including attorneys' fees.

(Two other parties intervened in the proceedings before the Licensing Board. Favoring the nuclear facility was the New York State Atomic Energy Council, the agency responsible for coordinating New York State's position on atomic energy matters. Tr. 2028. Opposed, pending the undertaking and completion of certain further studies, was the Environmental Defense Fund. EDF did not except to the Licensing Board's decision authorizing the construction permit, however, and neither EDF nor the New York AEC has participated in this appeal.)

II. NEED FOR POWER

Intervenors' attack upon the Licensing Board's decision is bottomed on the National Environmental Policy Act. As stressed in their opening arguments to us, the effect of that statute is to allow a decision authorizing construction of a nuclear power facility to be reached only after it has first been determined that, considering the available alternatives, the costs of building and operating that plant are outweighed by the benefits it will provide. We detect no quarrel with that legal formulation and, indeed, the Licensing Board quite properly sought to apply it. See RAI-74-6 at 1074. The intervenors contend rather that the Licensing Board erred in the application of that principle, thereby reconfirming the aphorism about general propositions not deciding concrete cases.[8]

Intervenors' basic dissatisfaction with the decision below focuses on the benefit side of the cost/benefit ratio. Stressing that the essential advantage of a nuclear generating station is the electric power it can produce, they say no benefit derives from the facility which could justify the economic and environmental costs of building it unless that power is "needed." As they note, we have ourselves observed that a determination that there is "a genuine need for the electricity to be produced" is an essential element in approval of a license for a nuclear facility. *Vermont Yankee Nuclear Power Corporation* (Vermont Yankee Nuclear Power Station), ALAB-179, RAI-74-2, 159, 175 (February 28, 1974).

Applying that rule to this case, intervenors assert that the applicant claimed to "need" Nine Mile Point Unit 2 only to meet projected growth in demand for electricity within its service area, and that the staff adopted a similar position. Intervenors agree that the Licensing Board properly rejected that claim for want of precise proof of the year any such need would arise, but they object to the Board's justifying construction of the new plant on a different basis; i.e., as a substitute for, rather than as an addition to, applicant's existing generating

[8] *Lochner* v. *New York*, 198 U. S. 45, 76 (1905) (Holmes, J., dissenting.).

capacity. Intervenors assert that the Board's "substitution theory" cannot support its decision because (1) that theory is inconsistent with our rationale in *Vermont Yankee, supra*; (2) no notice was given that the theory was at issue in the case; (3) it is not supported by substantial evidence in the record; and (4) neither non-nuclear substitutes nor the views of other agencies about them were considered, as NEPA requires.

Both the applicant and the staff urge that authorization of the construction permit be affirmed. The staff does not defend the Board's rationale, however. Instead, it chooses to stand by its original position and contends that the Board below erred in not finding Nine Mile Point 2 necessary to meet projected increases in demand for electric power in Niagara Mohawk's service area. The applicant agrees with the staff's position on need for additional power, but also supports affirmance on the "substitution theory" articulated by the Licensing Board majority.

A. *The substitution theory*

1. Intervenors suggest that the substitution of nuclear-generated power for that produced by conventional means can not, by itself, suffice to justify the construction of a nuclear facility, relying on our decision in *Vermont Yankee, supra*, as support for this position. Br. p. 11. They read that case to hold that a need for "new power" (in the sense of additional system base load capacity) must be demonstrated before a permit to construct a nuclear generating facility may be authorized. We think the intervenors' reliance is misplaced. To be sure, *Vermont Yankee* does call for a determination that "some form of generating facility appears to be justified." RAI-74-2 at 175. But we did not limit the grounds for that justification to a showing of need for greater generating capacity. On the contrary, that decision expressly recognized that a Licensing Board may also take cognizance "of the effect which a shortage of fossil fuel, or a need to divert that fuel to other uses, might have upon demand for non-fossil fueled generating sources." RAI-74-2 at 175.

Vermont Yankee thus supports rather than undercuts the substitution theory. And properly so. Where it can be shown that oil is dear and the supply is short, it seems not only logical but desirable—if not essential—for public utilities to search for other means of providing electricity to consumers dependent on them. Nuclear power manifestly offers one possible method for doing so. This point need not be belabored; intervenors' own witness recognized its validity.[9] We therefore have no hesitation in rejecting as legally unsound and factually incorrect the contention that additional generating capacity is the only "benefit" cognizable under NEPA which a nuclear power plant can confer. Its ability to generate electricity when the operations of fossil fueled plants may be

[9] See Chapman, Tr. 1856.

curtailed is patently another such benefit, as the Licensing Board correctly appreciated.

2. Even if the substitution theory is an acceptable legal position, intervenors object to its invocation by the Licensing Board in this case. They contend that this argument was not advanced by the parties below but in fact was expressly disavowed by the applicant.[10] The Board's reliance on the substitution theory as grounds for its decision in these circumstances, say the intervenors, deprived them of the opportunity to challenge its application in this proceeding.

Intervenors' argument raises a serious question about the fairness of an important aspect of the hearing below. Of course the Licensing Board was entitled to resolve the proceeding on its view of the law and, moreover, to do so on a legal theory developed independently of trial counsel. That Board was not convened to umpire the competing contentions of private parties. It is a government tribunal vested with important public responsibilities. In discharging those responsibilities it has both the right and the duty to consider on its own initiative alternatives to those presented by litigants before it.[11] However, when the Board (or any administrative agency) elects to decide a case on a basis different from that on which it was brought and tried, it has a concomitant obligation to bring this fact to the attention of the parties before it and to afford them a fair opportunity to present argument and, where appropriate, evidence on the new issues. The cases hold it to be "well settled that an agency may not change theories in midstream without giving respondents reasonable notice of the change."[12] Consequently, if the intervenors' assertions are correct, then the Licensing Board's reliance on the substitution theory renders its decision analogous to a court's directed verdict which rests on grounds the litigants had no opportunity to address. Such a judgment is vulnerable on appeal, because, as the District of Columbia Circuit has explained:

> Courts must . . . conform their rulings to the law as they see it, irrespective of the deviating views and litigating courses of counsel. But this is not to say

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[10] App. tr. 59.

[11] See, e.g., *Calvert Cliffs' Coord. Comm.* v. *A. E. C.*, 449 F. 2d 1109, 1112 (D. C. Cir. 1971); *Michigan Consolidated Gas Co.* v. *Federal Power Com'n*, 283 F. 2d 204, 224 (D. C. Cir.), certiorari denied, *sub nom. Panhandle Eastern Pipeline Co.* v. *Michigan Consolidated Gas Co.*, 364 U. S. 913 (1960), and cases there cited.

[12] *Rodale Press, Inc.* v. *F. T. C.*, 407 F. 2d 1252, 1256 (D. C. Cir. 1968). See also *L. G. Balfour Company* v. *F. T. C.*, 442 F. 2d 1, 21-22 (7th Cir. 1971); *Hess & Clark, etc.* v. *F. D. A.*, 495 F. 2d 975 (D. C. Cir. 1974); *Sea-Land Service, Inc.* v. *Connor*, 418 F. 2d 1142 (D. C. Cir. 1969); *Subsidized Service on Routes 29 and 17*, 14 Pike & Fisher SRR 387, 393 (MSB 1974).

that a court may raise for the first time and simultaneously rule on a new point which the losing party has had no occasion to address with evidence.[13]

Therefore at this juncture we must explore whether intervenors were actually deprived of a fair opportunity to show the Licensing Board that the substitution theory was inapplicable in the situation presented here. We turn now to that question.

3. Intervenors assert (Br. p. 5) that this case was tried on the theory that Nine Mile Point Unit 2 was necessary to meet a projected increase in demand for electric power within applicant's service area and for no other reason. Our reading of the record confirms this characterization as accurate to the extent that neither the applicant nor the staff sought to justify the new plant as a substitute for existing fossil facilities, the ground on which the decision below rests. The need for additional base load generating capacity was of paramount concern in proposing the nuclear facility; any benefits which might be derived from its operation in place of conventional facilities were considered to be of secondary, minor importance. We need not pile Ossa on Pelion to reach this conclusion, for the applicant and the staff have acknowledged as much to us.[14]

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[13] *Kanelos* v. *Kettler*, 406 F. 2d 951, 954 n. 15 (1968). See also *Zenith Radio Corp.* v. *Hazeltine Research*, 401 U. S. 321, 330-332 (1971), and *United States* v. *47 Bottles, More or Less*, 320 F. 2d 564, 573-74 (3rd Cir.), certiorari denied, *sub nom. Schere* v. *United States*, 375 U. S. 953 (1963).

[14] E.g., Staff Br. pp. 3-4: "Intervenor correctly points out (Br. p. 5) that the only theory of need for the proposed plant advanced by the Applicant is that it will be needed in late 1978 'to meet projected growth in demand for electricity within its service area'."

Applicant's counsel, in oral argument before us (App. Tr. pp. 76-78):

> Mr. Larson:
>
> I might also add—and I want to make this quite clear, and I think this perhaps has not been made clear in this oral argument yet—and that is that Niagara Mohawk does not intend to build this plant solely as a matter of substitution of nuclear for fossil fuel capacity.
>
> Mr. Goldsmith [counsel for intervenors] has referred to Applicant's position in the record on this point, and he is correct on that.
>
> Niagara Mohawk is not intentionally building this plant early in order to satisfy energy objectives, or to phase out the existing plants. And it has no intention at this time of retiring fossil fuel generating capacity.
>
> ...
>
> Now Niagara Mohawk does not intend to plan to build this plant early. However, that does not rule out arriving at the completion of construction and having your load develop in some way, perhaps near the end it doesn't grow as fast as you thought it would, and there you have a plant and the demand hasn't quite caught up, or maybe you have another energy crisis and the demand drops.
>
> In that situation, more or less by chance rather than planning, you would have a plant available before you needed it, and all of the benefits which are ascribed to substitution would accrue, both economic, from the pollution standpoint, and from the standpoint of being available as a hedge, you might say, against fossil fuel problems.

This is not to say the record is devoid of evidence that nuclear plants have certain operating advantages over fossil-fired facilities. Rather, what evidence there is was not offered to develop the substitution theory. As a consequence, intervenors were never given a fair opportunity to demonstrate (if they could) that the theory was inapplicable to the circumstances of this case because they were not given notice that it was at issue. The situation developed in the following manner.

When intervenors offered evidence purporting to establish that the applicant's and staff's demand predictions were too high, Niagara Mohawk attempted to show in rebuttal that even if Unit 2 came on line a few years early it could be used to advantage. Their witnesses testified that until its full capacity was needed to meet peak demands, it could and would be operated in place of conventional plants to produce electricity at lower cost and with reduced dependence on foreign fuels.[15] Because, as we have discussed, the Licensing Board is not bound by the parties' legal theories but must decide the case on the evidence presented to it, this line of testimony might have lent support to or at least opened the gates for consideration of the "substitution theory." The intervenors, alert to this possibility, timely objected to the relevance of applicant's evidence on the ground that substitution of nuclear for oil-fired capacity was not at issue. If the evidence was to be admitted, then intervenors wished a continuance and further discovery to meet this assertedly new issue. Tr. 2070-72.

Counsel for Niagara Mohawk responded with unqualified statements that he did not consider the proposed testimony "central to our case" and that it would not be offered if it were construed as introducing "a brand new issue" which would "put us back in a discovery stage." Tr. 2077. He reiterated that "Applicant is not proposing the substitution of this plant for its fossil capability" (Tr. 2091), and represented the evidence he was about to offer as rebuttal "in the context" of "the benefits and detriments of having the plant early in case the demand does not follow exactly the projections." Tr. 2092. In light of those representations by the applicant, the Licensing Board admitted the evidence and denied intervenors' motion for a continuance for further discovery. Tr. 2095-2096.[16]

The applicant's representations and the Board's rulings eliminated the substitution theory as an issue in this proceeding. Whether intentional or inadvertent, the colloquy between Board and counsel gave intervenors every reason to assume that there was no need for them to extend the already long

[15] See, e.g. Tr. 2127-2130, 2398, 2417.

[16] The Board stated that it was admitting applicant's evidence subject to counsel's being able to tie it in through testimony of Mr. Rhode about "the benefits and detriments of having the plant early in case the demand does not follow exactly the projections," as counsel had offered. Tr. 2092, 2096. Counsel thereupon proceeded to do so. See, e.g., Rhode, Tr. 2127-28, 2133.

record with evidence to rebut that theory. It would be prescient counsel indeed who could have foreseen that the Board would place its decision on grounds thus forsworn. In short, the intervenors were not given fair notice that the substitution theory was at issue in the proceeding.[17] Because intervenors were entitled to that notice as a matter of law and did not get it, the Board's decision may not rest on that ground.[18]

B. *Applicant's need for additional generating capacity*

1. Resolution of the substitution issue does not complete our review of the Licensing Board's initial decision because the staff and the applicant claim there is another ground for its affirmance. They contend that, notwithstanding anything said in the decision below, the record demonstrates that Unit 2 is needed to meet projected demand for electricity in applicant's service area. This is a permissible argument; as the successful parties before the Licensing Board, they may urge that its decision be sustained on any ground which finds support in the record, even where the ground has been rejected or disregarded below. See *Jaffke* v. *Dunham*, 352 U. S. 280 (1957); *California Bankers Assn.* v. *Shultz*, 416 U. S. 21 (1974).

In reviewing licensing board decisions for the Commission, we possess "all the powers which it would have in making the initial decision." 5 U. S. C. § 557(b); 10 C. F. R. § 2.785(a)(1)(1974). Although we would not do so lightly, the authority so conferred includes the right to reject or modify findings of the Licensing Board if, after giving its decision the probative force it intrinsically commands, we are convinced that the record compels a different result. See *Wisconsin Electric Power Company* (Point Beach Nuclear Plant, Unit 2), ALAB-78, 5 AEC 319 (1972); *Hamlin Testing Laboratories* v. *A. E. C.*, 357 F. 2d 632, 637 (6th Cir. 1966); *F. C. C.* v. *Allentown Broadcasting Corp.*, 349 U. S. 358, 364 (1955); Davis, *Administrative Law Treatise* (1958 Ed.), §§ 10.03 and 10.04.

With these guidelines in mind, we examine the assertion by the staff and the applicant that the Licensing Board should have found the new facility necessary to satisfy expected increases in peak power demands on applicant's system. We begin by noting that the question in this case is not *whether* Niagara Mohawk will need additional generating capacity but *when*. The intervenors' witnesses no less than the applicant's and the staff's testified that the demand for electric

[17] As we mentioned earlier, the staff has sedulously declined to support the result reached by the Board on the grounds it gave. We interpret this as tacit agreement with the conclusion we reach here.

[18] This conclusion also renders it unnecessary for us to decide whether the "substitution" theory is supported by substantial evidence in the record or requires recirculation of the Final Environmental Impact Statement, other grounds urged upon us by intervenors. "An agency, like a court, need not decide questions which are not relevant to its decision." *Deep South Broadcasting Company* v. *F. C. C.*, 278 F. 2d 264, 266 (D. C. Cir. 1960).

power in applicant's service area is growing and will continue to grow; only the rate of growth is in dispute.[19] The growth rate in turn affects the time Niagara Mohawk must be ready with generating capacity adequate to satisfy the increased demand.

We take it to be settled that the utility company does not have the option of refusing to satisfy that demand, for the law of New York requires the company to provide adequate electrical service to its customers.[20] In practice, Niagara Mohawk satisfies this requirement by installing generating capacity sufficient to meet standards set by the New York Power Pool under the supervision of the New York Public Service Commission. To do so the applicant must have a minimum "reserve margin" of 18% more generating capacity than its annual "peak load."[21] That 18% margin represents the minimum needed to insure the utility's ability to provide reliable and satisfactory service during maintenance, unexpected forced outages and partial deratings of its generating equipment.[22]

The Licensing Board found the 18% reserve margin requirement to be reasonable. RAI-74-6 at 1066. That finding is not challenged here. The Board next sought to ascertain the "year of need" for Unit 2 by determining when the peak power demand on Niagara Mohawk's system would increase to the point where the applicant would need the 1100 megawatt capacity of the proposed nuclear facility in order to satisfy the combination of the increased demand and the 18% reserve margin. *Ibid.* A number of demand forecasts employing various assumptions and methodologies were introduced into evidence and were available for that purpose. The applicant's primary forecast was based on extrapolation of data respecting the historic growth of electric power in its service area during the period 1960-1971. The intervenors offered analyses using a similar extrapolation method but with 1965-1972 and 1967-1972 base periods. A forecast employing a completely different methodology, also introduced by the intervenors, was the "econometric demand analysis." The Board rejected all demand forecasts as insufficient "to ascertain a year of need for Unit 2 with any degree of reasonable certainty." RAI-74-6 at 1083.

The staff challenges the Board's finding. It asserts that the applicant's demand projections should have been accepted as "convincing." The applicant joins in that assertion and presses the additional argument that, in demanding proof of a specific year when the plant would be needed, "the Licensing Board has demanded an unduly strict standard of certainty." Br. p. 32. To decide these

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[19] E.g., Chapman, Int. Exh. 9, pp. 11 and 13, and Tr. 1687, 1808 and 1897; Owen, Staff Exh. 5A, p. 19; Counsel for Intervenors, App. tr. 13-14.

[20] N. Y. Pub. Serv. Law § 65 (McKinney 1955).

[21] "Peak load" is the highest demand experienced by the company during the year; the "reserve margin" is the difference between the total system generating capacity and the peak load. See App. Exh. 2, p. S2.7-1, and Staff Exhs. 2 (App. M) and 5A, pp. 3-4.

[22] Owens, Staff Exh. 5A, pp. 4-5.

contentions we examine each of the forecasts in turn, beginning with intervenors' econometric analysis.

a. *Intervenors' Econometric Demand Analysis.* Intervenors' favored method of predicting future peak loads on Niagara Mohawk's system was an econometric demand analysis sponsored by Dr. Chapman (Int. Exh. 9).[23] Simply described, econometric analysis is a method of estimating mathematically economic relationships among factors on the basis of numerical data. If the relationships among factors believed to influence one another can be quantified, then, by using mathematical techniques of regression analysis, a given change in some factors will in theory be reflected by predictable changes in the others.[24]

A recent article in the *Harvard Law Review* reveals that analyses of this type have been offered of late in a number of federal and state administrative proceedings. "The regression models introduced in most of these proceedings purport to furnish estimates of the economic effect of changes in the factor subject to regulatory control on the assumption that other economic factors and conditions either remain unchanged or change in specified ways. Since this is precisely the type of judgment frequently made by administrative agencies, proponents of econometric studies have presented regression methodology to the agencies as a tool of considerable regulatory value."[25] The author of the article goes on to observe, however, that despite the theoretical promise of econometric analysis, responsible officials have been unwilling to rely on predictions derived by the method. This reluctance is attributable to the fact that, of necessity, the underlying assumptions and methods used in econometric analysis must simplify reality. Consequently, the results of econometric analysis are vulnerable "to the charge that some important element has been omitted or imperfectly represented."[26] Indeed, Niagara Mohawk's witnesses offered precisely such reasons for their company's not using econometric forecasting

[23] Dr. Chapman is an assistant professor of resource economics in the Department of Agricultural Economics at Cornell University. Int. Exh. 9, p. 1.

[24] Intervenors' forecasts involve the use of regression analysis. See Int. Exh. 9, App. II, p. 4.

[25] Finkelstein, *Regression Models in Administrative Proceedings*, 86 Harv. L. Rev. 1442, 1443-44 (1973). The author is a practicing member of the New York bar and a lecturer at Columbia Law School.

[26] Id. at 1444.

techniques.[27] (Dr. Chapman agreed that utility companies do not use econometric studies in load forecasting. Tr. 1661.)[28]

We have given close attention to the econometric demand analysis submitted by intervenors precisely because this potentially valuable forecasting technique can be misleading if its underlying assumptions are erroneous. We conclude that the Licensing Board properly discounted the results of that analysis.

Intervenors' econometric model assumed that electricity demand by commercial and residential users in Niagara Mohawk's service area could be estimated by four "explanatory variables": population, income, price of electricity and price of natural gas.[29] With respect to industrial users, the model assumed that local population and per capita income were unlikely to have a very great effect on the amount of electricity consumed, the market for the area's industrial products not being confined to the immediate region. To forecast industrial demand, therefore, the model used the New York State Index of Factory Output and the price of electricity as the determining variables.[30] On these bases, intervenors' econometric demand analyses predicted 1992 as the earliest year Nine Mile Point Unit 2 would be needed.[31]

The assumptions which underlie intervenors' econometric study give us serious pause. To begin with, Dr. Chapman's analysis assumed that natural gas would be the alternative fuel to which energy users would turn as the cost of electricity increased. Putting aside for one moment the question of alternate fuels other than gas (e.g., oil and coal), whether there will be a future shift to natural gas does depend in some measure on the cost of that fuel. But it obviously also turns on whether gas will in fact be available. With respect to cost, intervenors' model assumed that natural gas prices would rise only 13% during the period 1970-1990, an increase of approximately ½ of 1% per year. Tr. 1662. This is unrealistic. Natural gas prices in applicant's service area have risen at a considerably more rapid pace; Dr. Chapman himself conceded on cross-examination that his assumptions regarding the future cost of natural gas (derived from earlier Federal Power Commission estimates) were without

[27] Rhode, Tr. 2114-15: "We, too, are interested in the general type of econometrics model employed by Dr. Chapman. Unfortunately, however, we have come to believe that while models of this type may prove to be extremely useful sometime in the future, they are not sufficiently developed at this time to rely upon for scheduling of new capacity. This opinion is based on reports received from our consultants at the university; different scholars who work in the field are presently in wide disagreement on the whole question of price elasticity. It seems that no one statistical model can include all the factors operative in a real world situation. The models presently being used generally include those factors which the individual researcher considers to be the major ones. The fact that disagreement does exist at this stage is not surprising because in a new and highly complex field of study reasonable men can and often do reach different conclusions."

[28] Intervenors' counsel concurs. See App. tr. 26.

[29] Chapman, Tr. 1672 and Int. Exh. 9, App. IV, p. 1.

[30] Int. Exh. 9, p. 9, and App. IV to Exh. 9, p. 2.

[31] Chapman, Int. Exh. 9, p. 9.

question "way off," perhaps by as much as a factor of 20. *Ibid.* Gas prices, he admitted, "are going to rise significantly and substantially more than the 13 percent over 20 years contained in the [econometric] prediction used here." Tr. 1704.

Whether any natural gas at all will be available to future Niagara Mohawk customers is of even greater significance. The company is already under New York Public Service Commission orders to limit the provision of new gas service. Tr. 1178-79; 3248. Uncontradicted evidence in the record indicates that the availability of natural gas as an alternative fuel in future years is problematic.[32] Yet intervenors' demand analysis does not take into account this very real possibility that the fuel will not be available. Tr. 1714. Manifestly, in econometric analysis as in any forecasting method, an unrealistic hypothesis can be a fatal defect. *Southern Louisiana Area Rate Cases* v. *Federal Power Com'n,* 428 F. 2d 407, 436 n. 91 (5th Cir.), certiorari denied, 400 U. S. 950 (1970).

Furthermore, intervenors' demand analysis ignores other possible alternate energy sources altogether. Petroleum, for example, a major fuel in the area, is disregarded for reasons totally unrelated to its importance. The reason for omitting petroleum in the econometric model was simply that price information was readily available about gas but not oil. Tr. 1843. Dr. Chapman suggested that his analysis is satisfactory without this information. Tr. 1844. Considering that oil (not to mention coal, also ignored in the model) is by far more widely used in Niagara Mohawk's service area than gas (Tr. 1713-16)[33], we find it difficult to credit this suggestion.

Another fundamental assumption of intervenors' econometric analysis is that a substantial increase in electric rates will seriously depress electricity consumption by industry, which uses half the electricity consumed in applicant's service area.[34] Dr. Chapman testified that if the price of electricity doubled, the industrial demand for electricity in Niagara Mohawk's area would drop significantly.[35] A witness for the New York Atomic Energy Council testified, however, that doubling the cost of electricity to those customers would represent an increase of less than 1% of the value of the goods they produced or purchased and would not have the depressing effect on electric demand assumed by Dr. Chapman.[36] Applicant's witnesses similarly testified that they found little or no correlation between industrial demand for electricity and its price.[37] Indeed, they pointed out instances in which the electrical demand for industrial service rose in the face of increasing prices or declined when prices were

[32] Rhode, Tr. 2121-22.

[33] See also Tr. 2119-20 (residential and commercial sectors).

[34] See App. Exh. 9.

[35] Tr. 1865-66.

[36] Grainger, Tr. 2019-22, and N. Y. Exh. 1.

[37] E.g., Garcy, Tr. 1548-49.

falling.[38] At the very least, this evidence casts doubt upon the validity of the assumptions regarding the elasticity of electric demand used in the intervenors' analysis.[39]

We also find it relevant to note that the use of Dr. Chapman's model to predict peak demand growth in the Niagara Mohawk service area gave results inconsistent with a similar analysis performed by him previously. Intervenors' Exhibit 9 shows a linear demand growth rate in the Niagara Mohawk area for the 1975-85 period of about 2% per year, leading to a year of need of 1992 for Nine Mile Point Unit 2. In contrast, in a regional survey of United States power demands published in *Science*[40] using the econometric method and data from the Commerce Department's Bureau of Economic Analysis, Dr. Chapman and his collaborators demonstrated a 4.7% demand growth rate for this period for the entire United States, 3.8% of the Mideast region and 4.4% for the New England region. These latter growth predictions are similar in magnitude to those of the applicant (4.1%, Tr. 3862). Intervenors' reasons for attributing in this proceeding a markedly lower growth rate to the Niagara Mohawk service area were never satisfactorily explained.[41]

Econometric forecasting is a relatively new technique. We expect that in the future the method will undergo refinements, quite possibly along the lines suggested by the *Harvard Law Review* article,[42] which will make econometric predictions generally more acceptable in administrative proceedings. In the

[38] Rhode, Tr. 2119.

[39] Counsel for intervenors, in cross-examining Mr. Grainger, tried to weaken his testimony by establishing that the data relied on by the witness was national rather than local and that the witness was not himself an econometrician. (Tr. 2040-58.) We note, however, that intervenors' own analysis of the industrial segment of Niagara Mohawk's customers was adjusted to reflect that their utilization of electricity depended on national rather than local factors (*supra*, p. 360), and the cross-examination did not challenge the accuracy of the statistics the witness relied upon.

[40] Vol. 178, pp. 703-08 (November 1972), submitted as an appendix to Intervenors' Exhibit 9.

[41] Intervenors attempted to demonstrate that the Niagara Mohawk service area is atypical and thereby explain why they assigned it a demand growth rate less than half that which they claim for the nation as a whole and other individual regions generally. See Int. Exh. No. 9, p. 3. Their principal justification was the area's low industrial growth rate coupled with its recent low population growth. Applicant's Exhibit 9, however, reveals that for more than 40 years electrical consumption in the industrial sector in the Niagara Mohawk service area has fluctuated within ±10% about a 2.2% per year growth rate, a trend which has persisted through two wars and several recessions. (This trend in industrial consumption is included in Niagara Mohawk's 4.1% growth forecast.) That exhibit also shows that electrical demand in the residential sector actually increased during the period of decreased population growth which intervenors rely on to explain their projected decrease in demand. These considerations undercut intervenors' attempt to justify the large discrepancy between their witness' prior published predictions of electricity demand for the United States as a whole and his predictions in this proceeding for the Niagara Mohawk Service area.

[42] Note 25, *supra*, p. 359.

present state of the art, however, we view such forecasts as reliable only where the data and the assumptions underlying the prediction are demonstrably valid. Our examination confirms the Licensing Board's conclusion that intervenors' econometric analysis rests in no small measure on questionable data and unrealistic assumptions. We therefore cannot fault that Board for not choosing to rely on demand forecasts based on that analysis.[43]

b. *Forecasts from patterns of historical demand.* Utility companies have traditionally relied on extrapolations of data describing the historical use of electricity to predict future power needs, a forecasting method which intervenors' and other parties' witnesses agreed has been accurately employed in the past.[44] Both the applicant and the intervenors submitted demand forecasts using this methodology. The submissions were essentially similar; each took into consideration power demands on applicant's system over what the respective parties considered the relevant years; each then extrapolated from those data purported projections of applicant's future power needs.[45] There were certain differences between the projections, however. The applicant used 1960-1971[46] as its data base while the intervenors offered projections based on 1965-1972 and 1967-1972 data.[47] The applicant, but not the intervenors, analyzed and projected independently the demands of its commercial, residential and industrial customers, adjusted those projected demands based on several judgmental factors derived from its experience, and derived its overall forecast by recombining those adjusted projections. Tr. 1168-70. Using as the test of "need" the point at which Niagara Mohawk would be unable to satisfy the projected peak demands and the 18% reserve margin requirements without power from Nine Mile Point Unit 2,[48] applicant forecast the winter of 1979-80 as the earliest "year of need" for the plant.[49] The regulatory staff,[50] a witness

[43] With commendable candor, Dr. Chapman himself discounted substantially the results of his econometric analysis, which had suggested 1992 or later as the "year of need." When pressed by one of the technical members of the Licensing Board for a "realistic" prediction of when Unit 2 would be needed (Tr. 1895-96), Dr. Chapman responded (Tr. 1897): "I have to answer your question in a judgmental manner, my interpretation of these results. My interpretation of these results is that I would believe at the present time that the most likely period in which the plant in question should be viewed as being brought into operation is in the mid-1980's, perhaps say between 1982 and 1988."

[44] Chapman, Int. Exh. 9, p. 4; Connor, Tr. 858.

[45] See Tr. 1168-69 and 1493-94; Int. Exh. 9, pp. 4-7; and F. E. S. pp. 8-1 to 8-11.

[46] 1971 was the most recent data at hand when applicant's forecast was submitted. Tr. 1494-95.

[47] Intervenors' Exh. No. 9.

[48] See p. 358, *supra*.

[49] The Licensing Board's decision recites 1978 as applicant's projected year of need. RAI-74-6 at 1066. On the basis of the test described, which is the governing factor, the record is clear that 1979 was the first year applicant predicted an inability to meet its reserve margin requirements. See E. R. pp. 1.2 *et seq.* See also F. E. S. p. 8-11.

[50] F. E. S. p. 8-10; see also Tr. 858.

from the Federal Power Commission,[51] and the New York Atomic Energy Council[52] supported the applicant's projections as reliable and prudent. Intervenors, however, forecast 1981 (using the 7-year-span) and 1987 (on the 5-year-span) as the year of need.[53]

Among these three forecasts, we find one clearly unacceptable and no significant difference between the remaining two. Turning first to intervenors' prediction based on the 1967-1972 time span, we think it of doubtful accuracy because it rests on too small a base. In our judgment, use of a five-year period in this case gives exaggerated effect to reduced growth in peak demand in the two most recent years. A broader review of historical energy demands, however, reveals a cyclical growth pattern, related no doubt to fluctuations in the economy.[54] Any forecast must in our judgment take that cycle into account; a five-year data span does not do so. This is demonstrable by attempting a forecast using data from an earlier five-year period and comparing the predicted result with the actual demand that followed. For example, if in 1961 one had sought to extrapolate future peak power demands on Niagara Mohawk's system from the historical use of electricity in 1955-1960 (a recession period), one would have been led to forecast virtually no growth at all for the ensuing years.[55] Such a prediction would have fallen far wide of the mark, because in fact peak electric power demand grew at about 5.5% annual rate over the next five years.[56] Moreover, serious adverse consequences might well have followed if, in reliance on that forecast, the utility company had failed to develop additional reserve generating capacity.[57]

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[51] Owens, Staff Exh. 5A, p. 19.

[52] N.Y.A.E.C. proposed findings, p. 5.

[53] Int. Exh. 9, p. 7. The years given are from intervenors' projections based on the earliest date Unit 2 will be needed to meet the reserve margin requirements. Intervenors' exhibit also contains projections based on various other definitions of year-of-need. In light of Niagara Mohawk's obligation to satisfy the reserve margin, intervenors' other projections are academic.

[54] See App. Exh. 9; and F. E. S. p. 8-10 and figure 8.2 on p. 8-3.

[55] Projected from Applicant's Exh. 9.

[56] See Applicant's Exh. 9.

[57] As a witness from the Federal Power Commission explained in his testimony: "The consequences of insufficient reserve are manifold. It can lead to small scale interruptions or widespread blackouts, affecting a few individuals or leading to situations affecting the health, safety, and economic well-being of large numbers of people. The life of individuals dependent upon iron lungs, artificial kidney machines, and other life-sustaining equipment will be endangered. Manufacturing activities involving electric heating, constant temperature conditions, and electric drive and controls will be interrupted, with possible spoilage of work in process. Other manufacturing activities will be interrupted but may suffer no more than loss of time and the losses that accompany unscheduled stoppages. The effect of the interruption depends upon time of occurrence, part of the system and the area affected, the magnitude of the power deficiency and the state of the system before the interruption." Owens, Staff Exh. 5A, pp. 7-8.

In short, given the fluctuating nature of the growth of electric power demand, forecasts based on short time periods may be overly influenced by transitory effects and thus not accurately reflect basic long-term trends. The use of limited data might be justified were none better available. In this case, however, reliable figures for more extended periods are at hand and we decline to credit a forecast so precariously based.[58]

As we mentioned earlier, we find no significant differences between the applicant's forecast of 1979 as the earliest year of need using 1960-1971 data, and the intervenors' prediction of 1981 as that year based on 1965-1972 data. The former analysis is somewhat more refined and does rest on data gathered over a longer term. We also note that the applicant's estimates of its future peak demand have in the past enjoyed a notable degree of accuracy.[59] Intervenors' forecast, while based on a briefer period, does have the advantage of incorporating data from one more recent year. Be that as it may, we do not consider the difference in predicted year of need—1979 vs. 1981—a statistically meaningful distinction. If there was one thing agreed upon in the proceeding below, it is that inherent in any forecast of future electric power demands is a substantial margin of uncertainty.[60] As with most methods of predicting the future, load forecasting involves at least as much art as science.[61] The margin of error implicit in such predictions is at least of sufficient magnitude to encompass the two-year difference between the applicant's and the intervenors' forecasts.[62] The applicant's choice of the earliest of the possible

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[58] Intervenors suggest that recent changes in important underlying considerations make earlier data obsolete, pointing, for example, to an increase in the deflated price of electricity. According to intervenors' own evidence, however, that increase occurred in 1971 and does not justify the use of 1967 as the initial point for gathering forecasting data. See Int. Exh. 9, p. 10, and fig. 1, following p. 2.

[59] Owens, Staff Exh. 5A (Table DKO-8).

[60] See, e.g., Connor, Tr. 858, 916, 928; Chapman, Tr. 1808; Garcy, Tr. 2105-06; Rhode, Tr. 2126-27; Owens, Staff Exh. 5A, pp. 10 ff. "On the other hand—and we don't dispute the proposition that no one, including the Intervenors, and we have been very explicit about that, can predict the future in any respect, the future demand for electricity with certainty." Int. Counsel, App. tr. 15.

[61] Intervenors' counsel expressed the hope at oral argument that forecasting had not become a mere craft. (App. tr. 126.) We reserve judgment on that.

[62] Applicant's demand projection (App. Exh. 12; F. E. S., Fig. 8.2 on p. 8-3.) shows that the historical peak demand data fits within a band of approximately ±5½ % about a trend line whose slope corresponds to a 4.6% annual average increase. A reduction in peak demand growth rate of 1% (from 4.6% to 3.6%) would, over a 6-year period, result in a decrease in the forecast peak demand of about 5½ %. This would cause a corresponding delay in the time Unit 2 would be required to meet minimum reserve requirements of 2 years, putting the earliest "year of need" back from the applicant's 1979 forecast to the intervenors' 1981 prediction.

"years of need" is readily understandable. Being legally obligated to meet reserve margin requirements,[63] any utility company must be expected to forecast load demands conservatively—i.e., favor the high side of such predictions—to insure that it is always prepared for unexpectedly high demands. We find nothing untoward in that attitude.[64]

In short, we think a fair reading of the most reliable forecasts reveals that the generating capacity of Nine Mile Point Unit 2 will be required to satisfy Niagara Mohawk's reserve margin obligations in the early 1980's. The question to which we must turn next therefore is whether this is a legally sufficient demonstration of applicant's "need for power."

2. The Board below concluded that it "cannot rely upon the forecasts presented to ascertain a year of need for Unit 2 with any degree of reasonable certainty." RAI-74-6 at 1083. The applicant would have us infer from that statement a holding by the Licensing Board that "to justify the plant on a demand basis, an Applicant must establish a single year of need with reasonable certainty." It then attacks that supposed rule as one which demands "an unduly strict standard of certainty of Applicant's forecasts."[65]

We perceive no such purpose in the Licensing Board's decision. The language upon which applicant focuses must be read in context. At that point in its decision, the Licensing Board was engaged in characterizing (rightly or wrongly) the evidence before it. The Board was well aware of—and indeed had previously commented on—the "uncertainty arising from the difficulty of predicting the future on the basis of what has happened in the past" and the "inherently speculative nature of forecasting peak demand," whether by econometric analysis or historical extrapolation. RAI-74-6 at 1067. After having thus expressly recognized the imprecision intrinsic in all demand forecasting, we do not believe that the Board intended nevertheless to demand unattainable certainty by requiring applicants to prove absolutely that a facility will be "needed" in one particular future year. On the contrary, we agree with intervenors' argument[66] that the Licensing Board applied the standard appro-

[63] See note 20, *supra*, p. 358.

[64] The New York Public Service Commission appears to share this viewpoint. In a case involving this applicant (but not this facility), that Commission observed: "A utility must also plan for . . . long-range load growth so that it will be able to provide safe and adequate service. The fact that a utility may at any given time have reserve capacity in excess of its optimum objective does not demonstrate imprudence." *In re Niagara Mohawk Power Corporation—Electric Rates*, N. Y. Pub. Serv. Comm. Opinion No. 75-4 (February 26, 1975).

[65] See App. Br. pp. 31-32.

[66] See App. tr. 16.

priate to the issue it was called upon to decide; to wit, given the uncertainties inherent in projections of future power demands, can it fairly be concluded on the evidence presented that a particular projection of future need for power is a reasonable one.[67] The portions of the opinion below to which the applicant objects simply express the Board's conclusion that the forecasts before it had omitted consideration of certain factors which, in the Board's view, precluded reliance on those predictions in this case.

We recognize, of course, that to say the correct standard was applied is not the same as saying it was applied correctly. We therefore proceed to that question. The Licensing Board's disregard of the forecasts pointing to a need for power from Nine Mile Point Unit 2 in 1979-81 is bottomed on its finding that recent peak demands on applicant's system fell below those predicted. RAI-74-6 at 1066. We have no quarrel with that finding. In our judgment, however, it is insufficient ground for rejecting those otherwise credible demand forecasts. To begin with, a plot of the relevant data[68] reveals that the peak demand reductions experienced by Niagara Mohawk in the last three years lie within that unavoidable margin of error which, as we previously discussed (p. 365, *supra*), inheres in all demand forecasting. Consequently, results falling within an expected error band of reasonably narrow breadth[69] do not serve to discredit a projection. Second, as we stressed earlier (pp. 364-365, *supra*), reliance on short-term data to contradict a long-term trend is doubtful wisdom, particularly where—as is the case here—the data in question continue to demonstrate an upward demand growth consistent with the long-term trend.[70]

Third, the Licensing Board attributed the drop in demand in part to conservation measures adopted to meet the "energy crisis." RAI-74-6 at 1065. The Licensing Board itself, however, characterized the evidence of the actual

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[67] Implicit in this holding is our rejection of applicant's contention that its own (or any utility company's) judgment about the need for new generating capacity on its system "should be considered presumptively correct." App. Br. p. 34. The practical effect of that proposal would be to lift the burden of persuasion from the applicant's shoulders. That shift however, runs counter to basic administrative law requirements. See Section 7 of the Administrative Procedure Act, 5 U. S. C. §556(d); the Commission's Rules of Practice, 10 C. F. R. §2.732; *Consolidated Edison Co.* (Indian Point Station, Unit No. 2), ALAB-188, RAI-74-4, 323, 356-57 (April 4, 1974); and *Virginia Electric and Power Company* (North Anna Power Station, Units 1, 2, 3 and 4), ALAB-256, NRCI-75/1, 10, 16-17 and n. 18 (January 27, 1975).

[68] F. E. S. figure 8.2 on p. 8-3. The 1973-74 winter peak, not plotted in figure 8.2, was 4896 Mw. (Tr. 3858).

[69] In this situation, ~±5%. See note 62, *supra*, p. 365.

[70] Ibid.

effectiveness of such measures in the past as "inconclusive,"[71] and found their future potential "speculative." Id. at 1080. We concur for the reasons set out in the Board's decision.[72] We part company once again, however, on the implication to be drawn from the presently inconclusive and immeasurable impact of those conservation measures. Unlike the Board below, we find those imponderables insufficient, in the circumstances of this case, to detract from the forecasts of continued growth in peak demand on the applicant's generating capacity.

For the foregoing reasons, the weight of the evidence persuades us that the applicant will require Nine Mile Point Unit 2 by 1979-81 to maintain its required 18% reserve margin of generating capacity over peak demand. This finding leads us to conclude that the benefits to be derived from Unit 2 outweigh its costs. We said in *Vermont Yankee*, "[i]f the electricity to be produced by a proposed project is genuinely needed . . . then the societal benefits achieved by having that electricity available are immeasurable."[73] Those benefits need not be discounted because some possibility exists that the need for power may develop nearer the end than the beginning of the forecast spectrum. The adverse consequences to the public of insufficient generating capacity are serious ones, (discussed *supra*, p. 364, n. 57), far more so than those flowing from having the plant on line a

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[71] The Board focused its attention most closely on the reduced demand experienced during the period of December 1973 through April 1974. RAI-74-6 at 1065. It attributed that reduction in large part to energy conservation measures instituted during the period, of which the most significant were (*ibid.*): (1) a mandatory 3% voltage reduction program throughout New York State; (2) daylight savings time; (3) voluntary reductions in the amount of heat wasted by industrial establishments; (4) reduced ventilation and lighting requirements for public and private buildings; and (5) voluntary responses to public appeals for conservation. The Board agreed, however, that voltage reduction was an emergency procedure and not a long-term conservation measure, and that the effect of reduced lighting requirements would be minimal at best. Id. at 1063 and 1081; and see Tr. 3909-10, 3985-86. In response to the applicant's evidence that the effectiveness of the voluntary measures would likely decline in the future as a result of a growing loss of interest and enthusiasm already apparent among its customers, as indicated by the upward trend in demand during the months of February, March and April 1974 when compared with demand in 1973 (Tr. 3911-13), the Board concluded that there were insufficient data to assess the long-term influence of the energy conservation measures adopted in 1973.

[72] The Licensing Board detailed the actual or potential energy conservation measures it considered, set forth its reasons for finding that their effect on demand growth cannot now be quantified, and related those findings to relevant portions of the record. See RAI-74-6 at 1060-65 (findings 54 to 76). Our independent review of the record confirms that the Board's resolution of these matters accurately reflects the weight of the evidence. Rather than extend an already lengthy decision unnecessarily, we simply note our concurrence in this portion of the Board's opinion.

[73] *Vermont Yankee Nuclear Power Corporation* (Vermont Yankee Power Station), ALAB-179, RAI-74-2, 159, 173 (February 28, 1974).

year or even two before its capacity is absolutely necessary. The record discloses that the latter involve at most added expense of relatively small dimension.[74]

Moreover, the environmental costs involved in constructing Unit 2 vary insignificantly (if at all) whether the plant is "early" or "late"; in either event those costs are limited. Unit 2 will be erected between two existing nuclear plants in what amounts to a nuclear park.[75] About 45 acres of presently undeveloped land would be occupied by the new facility and the need to widen an existing transmission line corridor would take another 133 such acres.[76] A number of fish and lake biota would be entrained in the plant's cooling water system in amounts not precisely ascertainable, but no claim is made that their destruction would significantly disturb the local ecology. The radiation dosage with all three plants in operation will be minimal; both that dosage and the fish impingement will be carefully monitored.[77] These findings are unchallenged. In the circumstances, we have no hesitation in ruling that the benefit to be derived from Nine Mile Point Unit 2 in the form of added generating capacity on applicant's system substantially outweighs the cost of providing it.[78]

3. Our conclusion that the cost/benefit ratio favors the construction of this facility does not end our task. Intervenors insist that such a decision cannot be properly made on this record because (a) an erroneous standard was used to measure the effectiveness of energy conservation alternatives, (b) the staff and the Board did not evaluate those alternatives properly, and (c) a new

[74] Applicant's witness Rhode provided an analysis of the yearly net cost of having the plant available early. The utility would incur a penalty of $71,600,000 in yearly fixed charges which would be offset by a fuel cost saving of $28,900,000 (assuming, as testified, that the plant's output would be used in lieu of more costly power generated by fossil fueled generating capacity) and a $40,300,000 saving realized by avoiding a year's worth of construction cost escalation at a rate conservatively assumed at 5% per annum. (Tr. 2127-28.) The results of this analysis show that it would cost the utility about $2,600,000 for each year the plant was in full operation before needed to meet the 18% reserve margin requirement. That figure, however, is without taking credit for sales of power outside of the Niagara Mohawk service area. Such sales, the witness stated, might actually result in a net financial benefit to the company. Tr. 2414.

[75] See p. 349, *supra*, n. 1.

[76] RAI-74-6 at 1068.

[77] Id. at 1069 and 1085-86.

[78] Intervenors do point out correctly that the cost/benefit analysis must be modified to include the adverse effects of the uranium fuel cycle attributable to this facility specified in the Commission's regulations. See 10 C. F. R. Part 50, App. D, §A.15, 39 F. R. 14188, 14191 (April 22, 1974); *Philadelphia Electric Company* (Limerick Generating Station, Units 1 and 2), ALAB-262, NRCI-75/3, 163 (March 19, 1975); *Philadelphia Electric Company* (Peach Bottom Atomic Power Station, Units 2 and 3), CLI-74-32, RAI-74-8, 217, 219-20 (August 8, 1974), affirming ALAB-216, RAI-74-7, 13, 35-36; and *Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, RAI-74-7, 79 (July 15, 1974). We have taken the fuel cycle costs into account in our conclusion and, as intervenors themselves concede (Br. p. 2), the addition of those minimal factors does not tip the balance against this facility.

environmental statement discussing those alternatives must first be drafted and circulated. We do not agree.

(a) Intervenors contend that the viability of the energy conservation alternatives should have been tested by whether those measures "could significantly reduce load *growth* in the Niagara Mohawk service area and thereby obviate or defer the need for the plant." Int. Br. p. 18. We note, however, the finding below (in which we concur) that the effects of the proposed energy conservation measures on load growth are "inconclusive" and "speculative." As we stressed earlier, such imponderables cannot be relied on in forecasting future electric power demand. See pp. 367-368, *supra.* Even where the standard intervenors propose the appropriate one,[79] it has thus been applied and the alternatives found wanting.

(b) The portion of the proceeding below devoted to energy conservation questions extended over seven full hearing days and filled fifteen hundred pages of trial transcript. See Tr. 2591-4089. On these issues, the Licensing Board heard 13 witnesses: 2 from these intervenors, 7 from another intervenor (EDF), 3 from the applicant and one from the staff.[80] The Board's opinion reveals that it considered at least twenty-three conceivable means for conserving electricity in the Niagara Mohawk area. Those possibilities ranged from a major restructuring of the applicant's rates to adjusting homeowners' thermostats downward. See RAI-74-6 at 1060-65. The intervenors insist nevertheless that "an adequate record" on the effectiveness of energy conservation measures was not developed because the staff investigated only measures "suggested and defined by [the] other parties." We note, however, that the intervenors do not suggest a single additional matter in this area which should have been but was not explored at the hearing below.

The purpose of NEPA is to assure that officials called upon to make decisions with possible environmental ramifications be apprised of reasonable alternative courses of action; remote and speculative possibilities need not be considered. *Life of the Land* v. *Brinegar,* 485 F. 2d 460, 472 (9th Cir. 1973), certiorari denied, 416 U. S. 961 (1974); *Daly* v. *Volpe,* 376 F. Supp. 987, 994 (W. D. Wash. 1974); *City of North Miami* v. *Train,* 377 F. Supp. 1264, 1272 (S. D. Fla. 1974). We do not think the staff or the Board below can be faulted for failing to look at additional "alternatives" in circumstances where none are suggested. All the apparent energy conservation measures have been reviewed; if

[79] But *cf. Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-74-5, RAI-74-1, 19 (January 24, 1974).

[80] The Licensing Board described the staff's witness as merely an "electrical engineer relatively inexperienced in the field of economics." RAI-74-6 at 1080. More accurately, this witness was a Commission employee, regularly working on cost/benefit analyses, who has satisfied the course requirements for a Ph. D. in economics at the University of California at Berkeley and is now in the process of completing his dissertation. See *Rathbun,* following Tr. 3133.

intervenors wished other novel possibilities considered, they should have specified the ones they wanted explored. While they do not have the "burden of proof," in the circumstances presented they were obliged to make a showing at least sufficient to require reasonable minds to enquire further.[81] NEPA calls for the development of "information sufficient to permit a reasoned choice of alternatives so far as environmental aspects are concerned," not a "crystal ball inquiry." *Natural Resources Defense Council, Inc.* v. *Morton*, 458 F. 2d 827, 836-37 (D. C. Cir. 1972). The review of feasible energy conservation alternatives in this proceeding satisfied that requirement. As the Ninth Circuit cautioned when faced with analogous arguments, NEPA "should not be employed as a crutch for chronic faultfinding." *Life of the Land* v. *Brinegar, supra*, 485 F. 2d at 472.[82]

(c) Under the Commission's Rules, the Licensing Board's evaluation of the energy conservation alternatives is deemed to modify the Final Environmental Statement; notice of the Board's decision is then published in the *Federal Register*;[83] the decision itself is also published and forwarded to the Council on Environmental Quality.[84] Intervenors insist, however, that NEPA requires the Final Statement as so modified to be recirculated among the other federal agencies so that they may now comment on the changes. Presumably their comments would then have to be incorporated into yet another "Final" Environmental Statement.

Intervenors' position is not well taken. In the form circulated among the agencies for comment, the Draft Environmental Statement on this facility contained a substantial discussion of the "need for power" from this reactor.[85] The likelihood of energy conservation measures being introduced to reduce electric power demand is but an aspect of that need. As the Second Circuit has

[81] *Consumers Power Co.* (Midland Plant, Units 1 and 2), *supra*, RAI-74-1 at 31-32.

[82] *Harlem Valley Transportation Ass'n* v. *Stafford*, 500 F. 2d 328 (2nd Cir. 1974), and *S. C. R. A. P.* v. *United States*, 371 F. Supp. 1291 (D. D. C. 1974), cited by intervenors, do not compel a different result. Those cases deal with the I. C. C.'s refusal to prepare an environmental impact statement at all (*Harlem Valley*) or, having done so, to give it more than *pro forma* consideration (S. C. R. A. P.). In the situation here, the evidence is clear that the NRC staff examined the energy conservation proposals independently and arrived at its own judgment of their value (See Rathbun Tr. 3133 *et seq.*), and that the Licensing Board took another "hard look" at those matters. See RAI-74-6 at 1060-65. The gravamen of intervenors' dissatisfaction is in reality that they disagree with the conclusions arrived at by the staff and the Board below.

[83] See 39 *F. R.* 27490 (July 29, 1974).

[84] 10 C. F. R. Part 50, App. D, § § A.9 and A.11 (1974); and 10 C. F. R. § 51.52(b), 39 *F. R.* 26285 (July 18, 1974). See *Philadelphia Electric Company* (Limerick Generating Station, Units 1 and 2), ALAB-262, NRCI-75/3 163 (March 19, 1975). Licensing Board and Appeal Board (and Commission) decisions are also disseminated to the public generally as they are issued via a monthly official publication, *Nuclear Regulatory Commission Issuances* (NRCI). (The unofficial *Atomic Energy Law Reporter*, published by Commerce Clearing House (CCH), also publishes significant decisions.)

[85] See *Ecology Action* v. *AEC*, 492 F. 2d 998, 1002 (2d Cir. 1974).

observed, the possibility of implementing such measures is not so recondite that, without specific mention, no one reading the Draft Statement could conceive of it.[86] On the contrary, one of the agencies commenting on that Draft specifically broached the possibility.[87] Indeed, it was the staff's decision (reflected in the F. E. S.)[88] not to consider the energy conservation measures suggested by that response which served to bring the whole issue to a head and led, ultimately, to the Commission's directive to consider such measures in the Licensing Board hearing.[89]

In short, the circulation of the Draft Environmental Statement served precisely the purpose contemplated by the framers of NEPA; it caused the Commission, the federal agency responsible for taking action, to consider an environmental matter it had initially disregarded. As we discussed previously, there can be no question that the matters in question were fully ventilated and taken into account. We do not understand NEPA to require further circulation of a Final Environmental Impact Statement which reflects the agency's consideration of suggested changes to the draft on which it is based.[90]

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[86] "The idea that if Niagara Mohawk's customers could be induced to consume less energy, it would have less need for power than had been projected was hardly so esoteric that the omission of any reference to this in the FEIS would prevent an Oswego housewife from making this point in the proceeding if she cared to do so." *Ecology Action, supra,* n. 85, 492 F. 2d at 1002.

[87] The Department of Agriculture's response suggested, *inter alia* (F. E. S. p. I-4): "The Applicant basically justifies Unit 2 on existing and projected growth rates of electricity consumption. Inasmuch as the production of electricity consumes natural resources and results in environmental change, we feel that the Statement should include a discussion of measures that the Applicant and the New York Power Pool of which it is a member, have under consideration to encourage more efficient utilization of electricity. *Some measures which could have a significant impact on demand projections might include the reduction of demands for costly peak power through special metering, implementation of rate structures designed to promote more efficient consumption, and the revision of present utility promotional efforts.*

"This discussion might be most appropriately placed in Section 8-1, 'Not Providing the Power.' " [Emphasis added].

[88] See F. E. S. p. 11-29, § 11.15.

[89] *Niagara Mohawk Power Corporation* (Nine Mile Point, Unit No. 2), CLI-73-28, RAI-73-11, 995 (November 6, 1973).

[90] The cases principally relied on by intervenors (Br. 22-25) do not call for a different conclusion. The District Court's decision in *Sierra Club* v. *Froehlke,* 359 F. Supp. 1289 (S. D. Tex. 1973), has been reversed by the Court of Appeals, *sub nom. Sierra Club* v. *Callaway,* 499 F. 2d 982 (5th Cir. 1974), rehearing *en banc* denied (*ibid.*). And, unlike the situation before us, *NRDC* v. *Morton,* 337 F. Supp. 170 (D. D. C. 1972) (dismissed as moot), and *I-291 Why? Association* v. *Burns,* 372 F. Supp. 223 (D. Conn. 1974), involved consideration of alternatives developed outside the course of the agency's regular NEPA procedures and neither raised nor suggested by the Draft Statement previously circulated. Finally, the NEPA hearing procedures adopted by the Commission and followed in this case comport rather than conflict with those endorsed by the Court of Appeals in *Greene County I,* 455 F. 2d 412, 421-22 (2nd Cir.), certiorari denied, 409 U. S. 849 (1972). See *Ecology Action* v. *AEC, supra,* 492 F. 2d at 1001-02.

III. ATTORNEYS' FEES

The counsel and the expert witnesses who assisted the intervenors in this proceeding did so without charge. Intervenors now ask that we award them sufficient funds to enable them to pay reasonable fees and expenses for those services "retrospectively." The right to such an award is claimed on the ground that intervenors made a material contribution to the proceeding and thereby served a valuable public purpose. We believe the request premature.

While it has been discussed, it has not been decided whether the Commission is authorized to make such payments—and if so to whom, under what conditions and in what amounts. The matter is under consideration now and the Commission has referred it to a rulemaking proceeding. See *Consumers Power Company* (Big Rock Point Nuclear Plant), CLI-74-42, RAI-74-11, 820 (November 20, 1974). In these circumstances the wisest course is to abide the outcome of that proceeding. We therefore deny the intervenors' request at this time, but without prejudice to its renewal before the Licensing Board in light of the Commission's ultimate decision. We thus need express no opinion about the Commission's authority to make such an award or the intervenors' entitlement to receive one.

The decision of the Licensing Board is *affirmed*;[91] intervenors' motion for fees and expenses is *denied without prejudice* as premature.[92]

It is so ORDERED.[93]

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the
Appeal Board

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[91] We have also conducted our customary *sua sponte* review of the initial decision and the underlying record. Other than as mentioned in our opinion, we find no error requiring corrective action.

[92] Notwithstanding any provisions of 10 C. F. R. §2.717(a) of the Rules of Practice, should the Commission establish rules permitting the award of attorneys' fees and expenses, the Licensing Board shall retain jurisdiction to entertain a request from intervenors for such an award, if made within a reasonable time after those rules take effect.

[93] Mr. William C. Parler initially served as chairman of this Board. He heard oral argument, took part in the deliberations leading to the disposition of this cause, and expressed agreement with the result we reach. He withdrew from the Board, however, upon taking office as Counsel to the Joint Congressional Committee on Atomic Energy and did not participate in the final drafting of this decision.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-265

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Atomic Safety and Licensing Appeal Panel

In the Matter of

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

(Nuclear Projects No. 1 and No. 4)

Docket Nos. 50-460
50-513

Appeal Panel Chairman, acting pursuant to 10 CFR §2.787(b), allows applicant to withdraw its appeal from Licensing Board's March 20, 1975 order (LBP-75-11) granting intervention petition.

RULES OF PRACTICE: APPELLATE REVIEW

As previously noted in *Grand Gulf* decision (ALAB-140), Appeal Board normally will not pass upon rulings on intervention petitions in the absence of a properly perfected appeal under 10 CFR §2.714a.

MEMORANDUM AND ORDER

April 15, 1975

The applicant has filed a notice of withdrawal of the appeal which it had taken under 10 CFR 2.714a from the March 20, 1975 memorandum and order of the Licensing Board granting the petition of Donald F. X. Finn for leave to intervene in this construction permit proceeding. LBP-75-11, NRCI-75/3 252. The withdrawal was called for by a stipulation entered into by all of the parties to the proceeding, including Mr. Finn. The effect of the stipulation is that Mr. Finn will remain a party to the proceeding, which, on an agreed-upon schedule, is to move forward through discovery to the commencement of the evidentiary hearings next month.

There is no reason not to allow the appeal to be withdrawn. We therefore must leave for another day the resolution of the apparent existing conflict between licensing boards regarding what must be established to confer standing

to intervene. In the present case, the Licensing Board concluded that the allegations of Mr. Finn's petition were sufficient to meet the interest requirements of 10 CFR 2.714(a). Less than two months earlier, however, Mr. Finn had unsuccessfully endeavored to intervene in a related proceeding on the basis of the very same allegations. The differently constituted Licensing Board assigned to that proceeding determined that, as a matter of law, the allegations were insufficient to create standing. *Washington Public Power Supply System* (Nuclear Projects Nos. 3 and 5), LBP-75-2, NRCI-75/1 21 (January 31, 1975).[1]

Leave to withdraw the appeal *granted.*

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

This action is taken by the Panel Chairman under the authority of 10 CFR §2.787(b).

[1] Mr. Finn elected not to appeal that determination. We have previously said that normally we will not pass upon rulings on intervention petitions in the absence of a properly perfected appeal under 10 CFR 2.714a. *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-140, RAI-73-8 575, n. 1 (August 13, 1973). The existence of a conflict between licensing boards is, of course, not a normal circumstance. Nevertheless, it seems preferable not to tackle the disagreement at hand without the assistance of litigants interested in having the matter resolved in their case.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-266

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Michael C. Farrar, Member
Dr. Lawrence R. Quarles, Member

In the Matter of

TEXAS UTILITIES GENERATING COMPANY ET AL.

(Comanche Peak Steam Electric Station, Units 1 and 2)

Docket Nos. 50-445
50-446

Mr. Nicholas S. Reynolds, Washington, D. C., (Messrs. J. Irion Worsham and Spencer C. Relyea of counsel) for the applicant, Texas Utilities Generating Company.

Mr. Gregory H. Fess for the NRC Staff.

Upon *sua sponte* review of October 11, 1974 and December 12, 1974 initial decisions (LBP-74-75 and LBP-74-88), ASLAB finds that the record, supplemented by staff affidavit submitted in accordance with ALAB-260, supports determination that the land to be used for constructing a cooling reservoir is of such low agricultural productivity that it will not be needed to fulfill the nation's presently foreseeable demands for food and consequently that the alternative of mechanical-draft cooling towers would offer no significant advantage over the reservoir.

Initial decisions affirmed.

NEPA: LAND-USE INQUIRY

The *LaSalle* doctrine (ALAB-153 and ALAB-193) does not require a remand for receipt of further evidence on whether the site might be needed for agricultural purposes where there is no contest between the parties on the land-use issue and where affidavits adequately supplement the record to permit a board to make a reasoned evaluation thereof.

RULES OF PRACTICE: AMENDMENT TO FINAL ENVIRONMENTAL STATEMENT

The FES is to be deemed modified to include the contents of a staff affidavit bearing on land-use issues, which had been requested by ASLAB to supplement the record. *Maine Yankee* (ALAB-161).

DECISION

April 23, 1975

In compliance with ALAB-260, NRCI-75/2 51 (February 26, 1975), the NRC staff has supplied us with (1) its evaluation of the nature and quality of the agricultural land which the applicant proposes to utilize in constructing a 3,228 acre reservoir to provide the Comanche Peak facility with cooling water; and (2) an explanation of certain of its proposed site criteria findings which the Licensing Board had adopted in paragraph 65 of its October 11, 1974 initial decision (LBP-74-75, RAI-74-10 673, 694). On the basis of these submissions, we are able to conclude our *sua sponte* review of both the October 11 decision and the Licensing Board's subsequent initial decision of December 12, 1974 (LBP-74-88, RAI-74-12 1047).[1] We affirm both decisions.

I

What prompted our request that the staff furnish an appraisal of the reservoir site is detailed in ALAB-260 and need not be rehearsed at equal length here. Suffice it to say that ALAB-260 was addressed to the applicant's insistence that, contrary to our tentative conclusion in ALAB-255, NRCI-75/1 3 (January 23, 1975), there was no warrant to remand the proceeding under the *La Salle* doctrine[2] for the receipt of further evidence on whether the site might be needed for agricultural purposes. This was so, we were told, because we could and should find, on the strength of disclosures in the applicant's Environmental Report, that the land proposed to be taken for the reservoir is of relatively low agricultural quality. We did not accept this thesis. Although disclaiming any suggestion that the Environmental Report likely was unreliable, we were nonetheless disinclined to make those findings in the absence of the staff's independent evaluation of the suitability of the land. That evaluation had not

[1] The December 12 decision resolved those issues not previously adjudicated and authorized the issuance of construction permits for both units of the Comanche Peak facility. See ALAB-255, NRCI-75/1 3, 4 n.1 (January 23, 1975).

[2] *Commonwealth Edison Co.* (La Salle County Nuclear Station Units 1 and 2), ALAB-153, RAI-73-10 821 (October 19, 1973) and ALAB-193, RAI-74-4 423 (April 15, 1974).

been provided either in the Final Environmental Statement or at trial. Hence we asked that it be now furnished in affidavit form. See NRCI-75/2 at 55-56.

1. The affidavit which has been submitted to us is that of Dr. Jerry R. Kline, a terrestrial ecologist on the NRC staff who possesses a Ph. D. in soil science and occupies a supervisory position in the section responsible for the review of the land use portions of environmental reports prepared by applicants. On the basis of, *inter alia,* his analysis of the use presently being made of the cropland at and in the general vicinity of the reservoir site (and his appraisal of the cropland's potential for higher productivity), Dr. Kline came to the following four conclusions:

(a) Cropland at the reservoir site, and in the Hood-Somervell County area, is of a lower quality than other grain producing areas of Texas and the nation.

(b) There is a very small potential for this land to be extensively used for grain production because it is not economically competitive with other grain producing areas.

(c) The land to be inundated for the reservoir is principally adapted to beef production, and production of beef in quantities sufficient to meet probable future demand will be determined by factors such as investment of labor and capital to improve range to pasture land, rather than by increased land use.

(d) Substantial amounts of land are available in Hood and Somervell Counties which could be improved to meet any need for future beef production.

These conclusions in turn led him to the ultimate judgment that "[t]he agricultural productivity of the 3,228 acres of land to be utilized as a cooling reservoir for the Comanche Peak facility will not be needed to help fulfill the nation's presently foreseeable demands for food products."

We perceive no reason to question either the scope of Dr. Kline's inquiry into the relevant facts or his findings derived from the fruits of the inquiry. The affidavit satisfies us that there presently exists a sufficient record foundation for determining, as did the Licensing Board in paragraph 56 of its October 11 decision,[3] that the alternative of mechanical-draft cooling towers would "offer no significant advantage" over the reservoir. Although we decided in ALAB-255 that the discussion in the FES was inadequate to support such a determination,[4] Dr. Kline has gone well beyond that discussion. All that the FES disclosed was that the crops and livestock on the reservoir site represented a small fraction of the total agricultural production in the two counties in which the site is located—a consideration we thought scarcely dispositive.[5] Dr. Kline's analysis,

[3] RAI-74-10 at 690-91.
[4] NRCI-75/1 at 5-6.
[5] *Ibid.*

grounded upon appreciably greater information having a direct bearing upon the potential of the land, establishes much more: it tells us that the land is of relatively low productivity and that, taking into account all other relevant factors (*e.g.*, the availability of other equivalent land), its loss to agricultural production is not likely to be felt in the absence of a food scarcity emergency of proportions not currently anticipated.

In these circumstances, we conclude that a remand is no longer required under the *La Salle* doctrine, as that doctrine was refined in ALAB-260, NRCI-75/2 at 54-55. The FES is, however, to be deemed modified to include the contents of the Kline affidavit. See *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, RAI-73-11 1003, 1013 (November 30, 1973).[6]

II

Our difficulty with paragraph 65 of the October 11 initial decision centered upon the finding that the "specified minimum exclusion distance, low population zone and population center are not more restrictive than many sites previously licensed by the Commission." RAI-74-10 at 694. For the reasons set forth in ALAB-255, NRCI-75/1 at 8-9, we were at a loss to understand the use of the phrase "not more restrictive" in connection with any one of the concepts of exclusion area, low population zone and population center.

According to the staff's recent submission to us, the thought which it intended to convey in proposing the finding was simply this: The Comanche Peak exclusion area (having a radius of 4600 feet), low population zone (having a radius of four miles) and population center distance (40 miles) are at least as large as those of previously licensed plants. Accordingly, to meet the radiation dosage limits imposed by 10 CFR Part 100, Comanche Peak will not require any engineered safety features other than the ones which have been required of the prior facilities.[7]

Thus, as the staff invokes the term, exclusion areas, low population zones and population center distances are comparatively more "restrictive" if their size is such that it would be necessary to employ "more elaborate engineered safety features than required at previously licensed plants." Although we accept this

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[6] Since the additional information supplied by the affidavit merely provides the requisite underpinning for a finding made by the Licensing Board, there is no need to strike a new cost/benefit balance.

It should also be reemphasized that a remand is avoidable only because there is no contest between the parties on the land-use issue. See ALAB-260, NRCI-75/2 at 56.

[7] See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, RAI-74-12 957, 961 (December 24, 1974).

clarification on the point, we remain unconvinced that the average discerning reader of paragraph 65 could possibly have gleaned any such message. Boards and litigants should take pains, of course, to avoid elliptical references or terminology of obscure import, particularly when addressing crucial safety or environmental matters.

III

Our review of the remaining portions of the two initial decisions and the underlying record has disclosed no error requiring corrective action.

The initial decisions of October 11 and December 12, 1974 are *affirmed.* It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-267

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Michael C. Farrar, Member
Richard S. Salzman, Member

In the Matter of

Docket No. 50-482A

KANSAS GAS AND ELECTRIC COMPANY
AND KANSAS CITY POWER AND
LIGHT COMPANY

(Wolf Creek Generating Station,
Unit No. 1)

Mrs. Frances E. Francis, Washington, D. C., for the appellant, City of Osawatomie, Kansas.

Motion to withdraw appeal from Licensing Board decision denying intervention petition (LBP-75-14) granted.

ORDER

April 23, 1975

Pending before us is the appeal of the City of Osawatomie, Kansas, from the Licensing Board's April 1, 1975 order denying its petition for leave to intervene in this antitrust proceeding involving the Wolf Creek Generating Station, Unit No. 1. The City has now moved for leave to withdraw its intervention petition. Since the petition has already been denied, we treat the motion as one to withdraw the appeal. So treated, the motion is granted. In taking this action, however, we express no opinion whether, having voluntarily abandoned its timely appeal for reasons satisfactory to itself, the City can (as its papers

suggest) reserve further rights under Section 105 of the Atomic Energy Act (42 U.S.C. §2135) *vis-à-vis* these applicants.

Appeal *dismissed.*

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-268

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
Michael C. Farrar, Member

In the Matter of

SOUTHERN CALIFORNIA EDISON COMPANY, et al.

(San Onofre Nuclear Generating Station, Units 2 and 3)

Docket Nos. 50-361
50-362

Messrs. Sherman Chickering, C. Hayden Ames, Frank S. Bayley, III and David R. Pigott, San Francisco, California, and Messrs. Rollin E. Woodbury, Robert J. Cahall, David N. Barry, III, Charles R. Kocher and Kingsley B. Hines, Rosemead, California, for the applicants, Southern California Edison Company, et al.

Mr. Fredric P. Sutherland, Los Angeles, California, for the Consolidated Intervenors

Messrs. David E. Kartalia and Lawrence J. Chandler for the NRC staff

Upon further consideration of exceptions relating to control of exclusion area (ALAB-248), ASLAB finds proposed exclusion area unacceptable in light of applicants' lack of requisite control.

Upon *sua sponte* reconsideration of appropriateness of low population zone in light of principles set forth in recent court decision, ASLAB concludes that no change is warranted in prior determination that applicants must reduce the LPZ from 3.0 to 1.95 miles and, if necessary, add further equipment to insure compliance with Commission dose limitations.

Initial decision vacated as to approval of exclusion area.

Construction permit allowed to remain in effect for reasonable period.

EXCLUSION AREA: SIZE

The more extensive and effective are the proposed facility's engineered safeguards and other protective equipment, the smaller the exclusion area can be, since such protective devices serve to reduce the calculated radiation doses that might be received at a given distance from the plant following an accident of a given level of severity.

EXCLUSION AREA: CONTROL REQUIREMENT

Commission regulations require the applicant to show that, regardless of size, the proposed exclusion area is an area from which the public may and can be excluded. See 10 CFR 100.3(a).

EXCLUSION AREA: CONTROL REQUIREMENT

An applicant must be able to exercise control over the exclusion area at all times.

EXCLUSION AREA: CONTROL REQUIREMENT

The requirement of total control is relaxed in the case of a passageway such as a "highway, railroad or waterway," as to which post-accident control is sufficient. 10 CFR §100.3. The waterway exception is not applicable to the tidal portion of a beach, since the nature of such beach, with its pedestrian traffic, is sufficiently different from a waterway to preclude its inclusion within that exception. If an applicant had control over the landward portion of the beach, however, the remaining tidal portion might be regarded as sufficiently similar to a passageway to justify relaxing control requirement.

EXCLUSION AREA: CONTROL REQUIREMENT

Post-accident control over portions of exclusion area which do not qualify as passageways is not sufficient to fulfill control requirement.

EXCLUSION AREA: CONTROL REQUIREMENT

Effective control may be gained by an applicant if, by virtue of a contractual right, it can insist that the party in physical control exercise that control in a specified manner.

EXCLUSION AREA: CONTROL REQUIREMENT

When the language of an easement is unclear as to the degree of effective control over the exclusion area granted applicant, the conduct of the parties to such easement is useful in determining the meaning intended.

EXCLUSION AREA: CONTROL REQUIREMENT

Applicant cannot insist that party in physical control exercise that control in a particular manner where exclusion area property owners, while making commitment to comply with Commission regulations in regard to other uses, have reserved an unqualified right to use, or permit others to use, property for military operations, agricultural and recreational purposes.

CONSTRUCTION PERMITS: SITE CRITERIA

Site criteria must be applied as written where applicant neither seeks to invoke "special circumstances" provision of 10 CFR §2.758, nor seeks to demonstrate that "other factors" than those reflected in 10 CFR Part 100 should be considered.

CONSTRUCTION PERMITS: APPELLATE REVIEW

Immediate revocation or suspension of construction permits would be appropriate if the deficiencies found by Appeal Board (1) posed a hazard during construction; (2) needed to be corrected before further construction took place; (3) were uncorrectable; or if (4) significant environmental harm might result from continued construction.

RULES OF PRACTICE: CONSIDERATION OF ISSUES

Whether or not the staff is estopped from asserting a particular position does not affect a board's independent responsibility to consider the issue involved.

EXCLUSION AREA: PLANT SECURITY

Plant security should be considered in determining the acceptability of a proposed exclusion area.

LOW POPULATION ZONE: SIZE

A low population zone must be of such size that: (1) a person located at its outer boundary would not receive a radiation dosage in excess of certain reference levels when exposed to post-accident radioactive cloud through its entire period of passage; (2) persons located within the interior can be protected, by evacuation or otherwise, from receiving a larger radiation dosage in the event of an accident; and (3) there is no "population center" reaching to within one and one-third times the distance from the reactor to the zone's outer boundary.

LOW POPULATION ZONE: SIZE

A LPZ need not have any arbitrary minimum dimension. The minimum permissible size of an LPZ depends on the nature of the engineered safeguards

designed into the particular facility to limit radioactive emissions; geographic distances are meaningless without reference to the design of the plant and the resulting consequences that might occur at those distances following an accident.

LOW POPULATION ZONE: SIZE

If a smaller LPZ is proposed, it may be necessary to place special conditions on station design (*e.g.*, added engineered safety features) before the site can be considered acceptable.

SITE SUITABILITY: EVALUATION

To the extent that Staff Working Paper and Draft Guide suggest that stated distances are absolute minimums, they are inconsistent with existing Commission regulations. *Porter County Chapter of Izaak Walton League of America* v. *A.E.C.*,_____F. 2d____(April 1, 1975, Docket No. 74-1751) examined.

DECISION

April 25, 1975

In our most recent published decision in this proceeding (ALAB-248, RAI-74-12 957),[1] we disposed of almost all the questions raised concerning the correctness of the Licensing Board's initial decision, which had authorized the issuance of permits for the construction of two additional nuclear generating units next to an already operating nuclear facility at the San Onofre site.[2] At that time, however, we indicated that the unique aspects of the proposed exclusion area raised "a number of questions which the briefs of the parties either could not have anticipated or did not fully address." RAI-74-12 at 958, 964-66.[3] Accordingly, we called for the submission of additional briefs to aid us in determining whether the proposed exclusion area meets the nuclear site suitability standards set forth by the Commission in 10 CFR Part 100.

[1] Our earlier published decisions are cataloged in ALAB-248, fns. 2 and 3 and accompanying text, RAI-74-12 at 958.

[2] LBP-73-36, RAI-73-10 929.

[3] Some of the questions had not surfaced before the Licensing Board and were not sufficiently well developed in the parties' briefs because, as came to light during the course of the appeal, the evidence adduced below did not paint a completely accurate picture of the dimensions of, and the activities planned within, the exclusion area. For example, a negative response was given to a question as to whether any public facilities would be located within the exclusion area (Tr. 1321-22; contrast p. 390, *infra*).

1. We have received and studied the supplemental briefs, and reviewed those portions of the record—including the maps and other documents submitted to us[4]—which bear on the appropriateness of the exclusion area. For the reasons set forth in the first two parts of this opinion, we conclude that, as presently proposed, the exclusion area is not acceptable. The deficiencies may, however, be correctable and no hazard would be presented if construction were to continue while the applicants attempt to remedy the situation. Consequently, we need not call an immediate halt to further construction; instead, we will stay our hand for a reasonable period so that the applicants may have the opportunity to modify their proposal in an effort to make it acceptable.

2. Our decision in ALAB-248 dealt fully with the issues which had been raised concerning the calculated population center distance and its relationship to the proposed low population zone. RAI-74-12 at 958-64. Since that time, however, a court of appeals has dealt with similar issues in another proceeding. *Porter County Chapter of the Izaak Walton League of America* v. *Atomic Energy Commission*, ____F. 2d____ (7th Cir., April 1, 1975, Docket No. 74-1751). In Part III of this opinion, we reconsider ALAB-248 in light of the principles set forth in *Porter County*. We conclude that no change in our prior decision is warranted.

I

A. The Commission's regulations require that an applicant establish around a reactor an "exclusion area" of such a size that, considering a number of relevant factors, "an individual located at any point on its boundary for two hours immediately following" a major accident would not receive a radiation dose in excess of certain "reference" values. 10 CFR 100.11(a)(1). Under this concept (and all other factors being equal), the more extensive and effective are the proposed facility's engineered safeguards and other protective equipment, the smaller the exclusion area can be.[5] For such protective devices serve to reduce

[4] Except insofar as the depiction of the seaward boundary of the exclusion area is concerned (a matter we treat *infra*, fn. 12), the parties have not suggested that the two maps ("Drawing Number 1" and "Drawing Number 2") attached to the applicants' June 13, 1974 supplemental memorandum are inaccurate. Nor has any question been raised as to the genuineness of the copies of the easement from the Navy to the applicants and the lease from the Navy to the State which were furnished to us and the parties by the applicant on December 5, 1974. The questions we posed in ALAB-248 stemmed in part from our preliminary appraisal of these maps and documents. All parties have had full opportunity to comment on their significance; none has suggested we should not consider them in reaching our decision. Accordingly, we direct that those materials be considered as part of the evidentiary record in the proceeding.

[5] Applicants are not required to make the exclusion area as small as the calculated dosages would allow. They may opt for a larger area, provided that, as we go on to discuss in the text, they have control over it.

the calculated radiation doses that might be received at a given distance from the plant following an accident of a given level of severity.

The applicant must do more, however, to gain approval of an exclusion area than simply demonstrate that certain radiation dose levels will not be exceeded at its perimeter. In addition, it must show that, regardless of size, the proposed "exclusion" area is indeed an area from which the public may and can be excluded. Specifically, the Commission has decreed that the territory inside the exclusion area perimeter have the following characteristics (10 CFR 100.3(a)):

> "Exclusion area" means that area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area. This area may be traversed by a highway, railroad, or waterway, provided these are not so close to the facility as to interfere with normal operations of the facility and provided appropriate and effective arrangements are made to control traffic on the highway, railroad, or waterway, in case of emergency, to protect the public health and safety. Residence within the exclusion area shall normally be prohibited. In any event, residents shall be subject to ready removal in case of necessity. Activities unrelated to operation of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result.

The questions now before us concern whether the proposed San Onofre exclusion area comports with this provision of the Commission's regulations.

B. The San Onofre site is located along the California coast, just south of San Clemente, on the Marine Corps' Camp Pendleton Reservation. In 1963, Congress authorized the Secretary of the Navy to grant the applicants an easement in "approximately ninety acres" of Camp Pendleton land for the construction and operation of one or more nuclear electric generating units. Pub. L. 88-82, 77 Stat. 115 (July 30, 1963).[6] On May 12, 1964, the Secretary granted such an easement, in effect giving the applicants full control over an 84-acre station site.[7]

The station site is essentially rectangular, and has as its western boundary some 4500 feet of Pacific coastline.[8] The average width of the station site is slightly more than 800 feet.[9]

[6] The text of the legislation is set forth in the Appendix to this opinion.

[7] The metes and bounds of the station site are described in an attachment to the easement. See fn. 4, *supra*. No party has suggested that the applicants lack the necessary authority over the station site.

[8] More precisely, the coastline runs at nearly a 60° angle from true north in the vicinity of the site. Thus, it actually forms the southwestern—rather than the western—boundary of the station site. For ease of reference in this opinion, however, our description of the site and its environs will be written as though the coastline, and the long axis of the station site, ran in a true north-south direction.

[9] At its north end, the site is 785 feet wide; at its south end, it is 663 feet wide. Owing to the curvature both of the coastline and of the site's inland boundary line, the width of the site is greater in the middle than at either of the ends.

The exclusion area proposed by the applicants is considerably larger than the 84-acre station site. The exclusion area—the boundaries of which are not visible at the site—is shaped like a rough ellipse, resembling a racetrack, with the station site at its center. Encompassing both land and sea, it has a long axis of just under 1.5 miles running roughly parallel to, but slightly inshore of, the coastline.[10] It was formed by drawing two imaginary tangent lines between two imaginary overlapping circles, each with a one-half mile radius, whose centers are just under a half-mile apart. One of the circles is centered on the existing Unit 1 reactor and the other is centered on a point 2500 feet to the south, roughly halfway between the proposed Unit 3 reactor and the southern boundary of the station site. Thus, the exclusion area covers a total of just over 800 acres,[11] slightly more than one-half of which is located on land.[12]

Although the legislation authorizing the grant of the easement directly refers only to "approximately ninety acres" of land,[13] the easement contains, in addition to the provisions dealing with the 84-acre station site itself, a provision granting the applicants certain rights with respect to the more than 300 acres included in the off-site, landward portion of the proposed exclusion area. Specifically, paragraph 9 of the easement provides:

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[10] See the "Map Showing Locations . . ." following Exhibit B to the easement. According to that map, the center line of the ellipse is 7780 feet long.

[11] The area of half the ellipse can be derived by calculating the areas of the two quarter circles and the rectangle depicted on the "Map Showing Locations . . ." (*supra*, fn. 10). Those three geometrical figures total approximately 403 acres in area.

[12] The center line of the ellipse is at slight, but varying, distances inland of the irregular coastline. Thus, the landward portion of the ellipse encompasses not only the 403 acres referred to in fn. 11, above, but also the additional acreage between the center line and the coastline.

At an earlier stage of this proceeding, the applicants asserted that the exclusion area terminated at the coastline (see, *e.g.*, p. 18 of the applicants' November 27, 1973 brief in opposition to the exceptions). Indeed, the maps submitted to us appear to depict an area of this shape. Because the reactors are situated close to the coastline, however, this would result in a minimum exclusion area distance of about 100 meters, rather than the 800 meters (or one-half mile) upon which the applicants' dose calculations had been made. Consequently, the applicants later explained that, as had appeared from other evidence which they had adduced, it was intended that the exclusion area extend into the ocean. See pp 5-8 of the "Applicants' Reply . . ." filed September 13, 1974; PSAR §12.3.5.4, p. 12.3-23; Sheppard testimony, Tr. 981-83. The staff indicates that it has always understood that the exclusion area was intended to extend into the ocean. See pp. 1-3 of the staff's September 16, 1974 "Response . . .."

[13] See p. 388, *supra*, and Appendix, *infra*. The legislation does authorize easements in "such additional lands . . . as are necessary or desirable" for certain enumerated purposes. None of the purposes set forth appears to include the establishment of an off-site exclusion area.

That in the event of a nuclear incident or accident at the Nuclear Station, to protect the public health and safety, the Grantees may regulate the activities in and remove any and all persons from such portion of the exclusion area located outside of the Nuclear Station, as is established from time to time, by, or with the approval of, the United States Atomic Energy Commission, and as is located within the lands described in Exhibit B. Such portion of the exclusion area may be used by the Government, its successors or assigns, only for military operations (provided same do not endanger operation of the Nuclear Station), agricultural, recreational, and such other uses as may be permitted by the United States Atomic Energy Commission. . . .

As the several maps before us reveal, various activities are occurring in, or are contemplated for, the so-called "exclusion" area. That area includes the 1.5 mile stretch of beach along the ocean.[14] It is also traversed by an interstate highway (I-5, known as the San Diego Freeway) and a railroad track unrelated to the operation of the facility.[15] In addition, and of far more significance here, in 1971 the Secretary of the Navy leased several parcels of Camp Pendleton land to the State of California for development as a state park. Two of those parcels include territory in the exclusion area—*i.e.*, they begin at the north and south ends, respectively, of the station site and run along the coast to beyond the proposed exclusion area boundary. Present plans for the portion of those parcels within the exclusion area call for the construction of large parking lots, tent camping sites, a camp store, rest rooms, and hiking trails.[16] All of these facilities would be open to the public.

Graphically, then, the exclusion area and its environs have essentially the appearance shown in Figure 1.

C. In its present posture, the case requires us only to interpret and apply Commission regulations.[17] The threshold question before us is whether the applicant "has the authority to determine all activities including exclusion or removal of personnel and property" in the portions of the exclusion area outside the 84-acre station site. If that question were to be answered in the affirmative, we would then be faced with the additional question as to whether the activities

[14] The territory covered by the easement for the station site, as well as the territory covered by the more limited provision of the easement applicable to the off-site portion of the exclusion area, extend only to the mean high tide line. The beach itself encompasses territory on both sides of that line. In front of the station itself, the applicant has control over the beach on the landward side of that line. We refer in this opinion to that portion of the beach which lies outside the mean high tide line as the "tidal beach."

[15] A separate spur line runs into the station site.

[16] See "Drawing Number 2" (*supra*, fn. 4).

[17] *Cf. Virginia Electric and Power Co.* (North Anna Station), ALAB-256, NRCI-75/1 10, 13, fn. 6 and accompanying text.

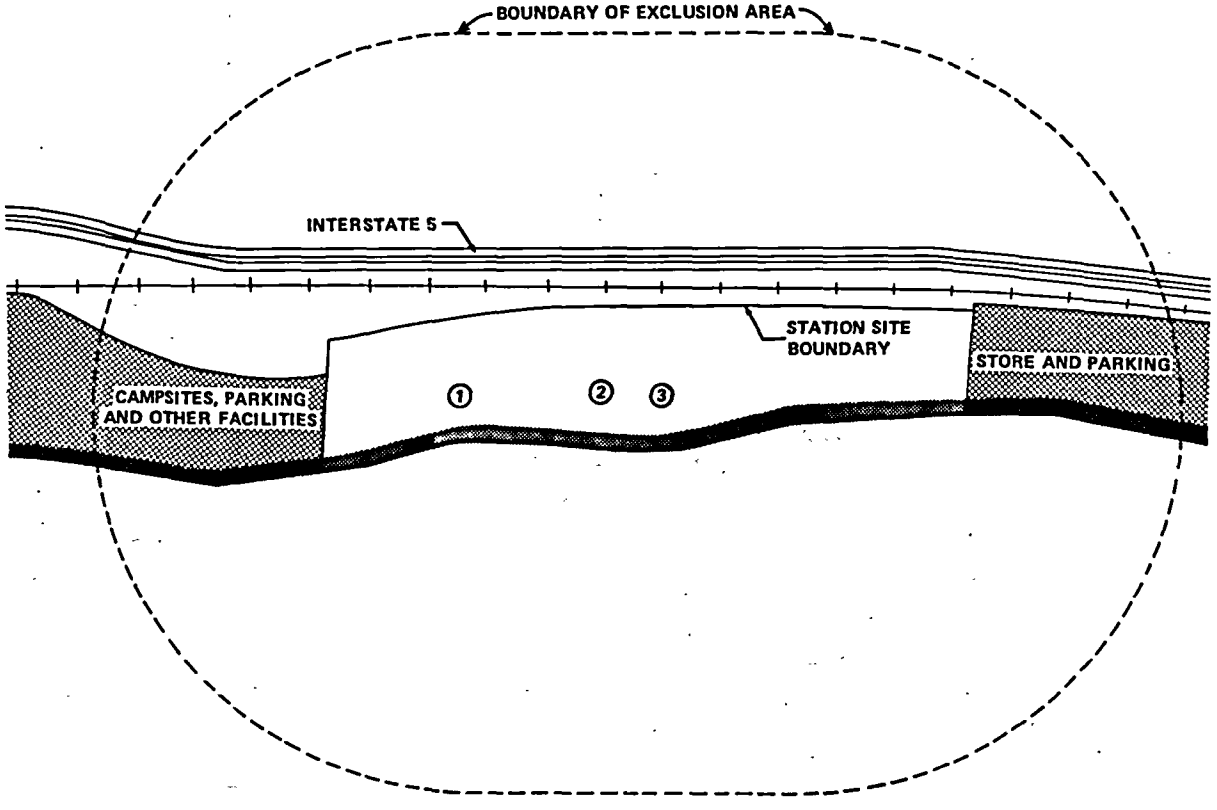

FIGURE 1 SAN ONOFRE NUCLEAR GENERATING STATION

contemplated in the park areas, as well as those in the additional portion of beach directly in front of the station site, are such that they will occasion "no significant hazards to the public health and safety ...." If that were the case, they could be "permitted . . . under appropriate limitations."

At this juncture, we need not rehearse the disparate arguments which the parties have advanced on these questions, for we discuss each substantial point later in this opinion. It suffices now simply to observe that, as might be expected, the applicants continue to assert that their proposal comports fully with Commission regulations, while the intervenors think otherwise.

The staff's position, however, deserves lengthier comment. The staff asserted initially that the applicants' proposal complied in all respects with Part 100. It held to that position in response to the applicants' post-argument submission.[18] After we issued ALAB-248, however, the staff reevaluated its position; in doing so, it took account of the results of a new analysis which it had conducted concerning potential post-accident radiation dosages. The staff now expresses doubt as to whether the applicants possess the requisite control over the off-site landward and the tidal portions of the exclusion area.[19] Moreover, in the staff's view, even if the applicants were held to have the necessary authority, the site would not be in compliance with Part 100. For the staff claims that its new analysis demonstrates that persons located on the beach in front of the station site might receive excessive radiation dosages in the event an accident occurred. Based on this analysis—the underpinnings of which the applicants have not yet had the opportunity to analyze or rebut fully—the staff argues that it cannot be said that the contemplated use of the beach poses no hazard to the public health and safety.

II

A. In some respects, the Commission's site suitability standards are couched in broad terms. But insofar as those standards deal with exclusion areas, they are expressed precisely. There is no mistaking the import of the terms used to describe the fundamental characteristic which an exclusion area must possess: it must be an "area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area." 10 CFR 100.3(a). This unequivocal directive means that an applicant must be able to exercise total control over the exclusion area at all times.

Our attention has been called to nothing which suggests to us that the Commission did not intend Section 100.3(a) to be applied as written. For their

[18] See ALAB-248, *supra*, RAI-74-12 at 964.

[19] Insofar as the control requirement is concerned, the staff visualizes no difficulty with the remaining sectors of the exclusion area, *i.e.*, the station site and the ocean.

part, neither the statements of considerations which accompanied the proposal and final version of Part 100,[20] nor the "Technical Information Document" referred to in that regulation,[21] reveals the existence of any underlying Commission policy that would call for us to apply the regulation differently in order to further some purpose sought to be achieved by its drafters.

Even without the benefit of any "legislative" history, however, one purpose of the "control" provision is readily discernible.[22] A closely related portion of the site suitability regulations sets limits on the calculated radiation dosages that might be received by persons at different locations following an accident. 10 CFR §100.11(a). It does so, insofar as the exclusion area is concerned, only with respect to persons located on that area's outer boundary. No attempt is made to place limits on the doses that might be encountered inside the area. From this, we can conclude that the drafters of the regulation were proceeding on the belief that, in view of an applicant's control at all times over the territory within the exclusion area, members of the public, if not wholly excluded, would be sufficiently supervised while in the area to render it unlikely that they would receive radiation doses higher than those permissible at the exclusion area perimeter.

In concluding that the regulation means what it says in demanding total control, we are not unmindful that the drafters created an exception that applies to certain traffic passageways. That exception relaxes the control requirement by permitting the exclusion area to be "traversed by a highway, railroad, or waterway," provided, *inter alia*, that "appropriate and effective arrangements are made to control traffic on the highway, railroad, or waterway, in case of emergency, to protect the public health and safety."

This limited relaxation of the control requirement does not undercut the need for the applicant to have full control of all other parts of the exclusion area. For inherent in the nature of the passageways are additional elements of control which are lacking elsewhere. Particularly with respect to the highways, persons utilizing the passageways can be expected to be (1) highly mobile and thus able to leave the exclusion area quickly; (2) limited by the nature of the passageway to that portion of the exclusion area; and (3) readily excludable from the entire area by the simple expedient of closing the passageway to traffic. Thus, the passageway exception underscores, rather than deemphasizes, the need for control of the exclusion area.

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[20] See 26 *F.R.* 1224 (February 11, 1961) and 27 *F.R.* 3509 (April 12, 1962).

[21] The note following 10 CFR §100.11 indicates that "further guidance in developing the exclusion area . . ." may be found in "Technical Information Document 14844, dated March 23, 1962."

[22] It can serve at least one other purpose. See p. 402, *infra*.

B. Against this background, we can examine the various portions of the San Onofre exclusion area to see if the necessary control is present.

1. There is no question that the easement grants the applicants total control over the 84-acre station site.[23] And, as we have already held, the ocean qualifies as a waterway and is thus exempted from the total control requirement.[24]

The portion of beach below the mean high tide level is less easy to classify. The intervenors point out that, under California law, the applicants cannot deny the public access to that portion of the beach. The validity of this observation was recognized in the initial decision which authorized the issuance of a construction permit for Unit 1, for there the Licensing Board noted that "the applicants are not able directly to control . . . access by the public to the Pacific Ocean waters which ebb and flow at less than 300 feet from the reactor containment." 2 AEC 366, 384-85 (1964).

At first, the applicants responded by claiming that the exclusion area terminated at the mean high tide line (see fn. 12, *supra*) and thus that their lack of control over the tidal portion of the beach was irrelevant. Having abandoned that position, they now devote most of their argument on this point to criticism of the staff for changing its position on the need for such control; they go so far as to suggest that the staff is estopped from asserting its new position. We need not unduly prolong this opinion by now commenting on that portion of the applicants' argument.[25]

On the merits, the applicants argue that the tidal portion of the beach should be encompassed within the waterway exception. We believe, however, that the nature of the beach, with its pedestrian traffic, is sufficiently different from a waterway, which carries boat traffic, to preclude us from accepting the applicants' argument. To be sure, if these applicants did possess total control of all the rest of an exclusion area, including the beach on the landward side of the mean high tide line, the lack of control over the narrow strand of beach below the mean high tide line could quite readily be viewed as *de minimus*. In such circumstances, the tidal portion of the beach would undoubtedly be little more than a pedestrian walkway for those wishing to stroll along the shore, or pass from one open part of the beach to another. This being so, considerations similar to those which are applicable to the other passageways would militate against a

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[23] See fn. 7, *supra*.

[24] ALAB-248, RAI-74-12 at 965, fn. 17, citing the Commission's decision in *Florida Power & Light Co.* (Turkey Point, Units 3 and 4), 4 AEC 9, 17 (1967).

[25] As the intervenors point out, the applicants themselves "have changed their position in at least two important respects during the course of these appellate proceedings." March 21, 1975 ". . . Supplemental Brief . . .," p. 3. See also p. 399, fn. 35 and accompanying text, *infra*.

strict application of the control requirement to the tidal beach.[26] But, as we determine later, the applicants do not currently control all but the tidal beach portion of the exclusion area.

2. a. The offsite, landward portion of the present exclusion area gives rise to an even more serious problem. The applicants' interest in that territory, which is traversed by both a highway and a railroad,[27] was conferred by a provision in the easement which grants substantially less control than the applicants have in the station site itself. In fact, the only direct interest conveyed to the applicants is the right, "in the event of a nuclear incident or accident at the Nuclear Station," to "regulate the activities in and remove any and all persons from . . . [the off-site] portion of the exclusion area . . .."

. . Obviously, this provision gives the applicants no control until after an accident occurs. We do not understand the applicants now to be asserting that such post-accident control suffices to meet the terms of the regulation. Rather, they appear to concede, at least implicitly, that this type of control, standing alone, would be inadequate. This concession seems clearly warranted. For the regulation is not framed in terms of control after an accident occurs; its plain language calls for the possession of control at all times. It is not unreasonable to afford the language its facial meaning. The drafters of the regulation could well have considered that the ability to avoid any injury as a result of an accident might hinge on the control that could be exercised over the exclusion area prior to the accident.

Further support for this reading of the regulation is to be found in the special exception to the control requirement carved out for passageways. As we have seen, that exception does not entirely eliminate the need for control; to the contrary, arrangements must be made "to control traffic," but only "*in case of emergency*" (emphasis added). This being so, it must be assumed that, as to areas which do not qualify as passageways, post-accident control is not sufficient. Else what purpose is served by the exception?

b. To avoid the impact of these considerations, the applicants argue that they have more than the mere post-accident control conveyed by the first sentence of paragraph 9 of the easement. Specifically, they construe the second sentence of that paragraph as according to them also "the authority under normal operating conditions to limit activities within the offsite exclusion area

[26] Although the control requirement could thus be laid to one side, it would remain for the applicants to demonstrate that the use of the tidal beach as a passageway within the exclusion area would not create any "significant hazards to the public health and safety." See p. 401, *infra*.

[27] As noted earlier in the text, the presence of these passageways is sanctioned by the regulation. See also ALAB-248, RAI-74-12 at 965, fn. 17.

to such as may be permitted from time to time by the NRC under its regulations . . . ."[28]

The sentence which the applicants claim grants them this authority provides that the offsite portion of the exclusion area

> . . . may be used by the Government, its successors and assigns, only for military operations (provided same do not endanger operation of the Nuclear Station), agricultural, recreational, and such other uses as may be permitted by the United States Atomic Energy Commission.

In terms, this sentence does not grant the applicants any direct authority to regulate activities in the offsite portion of the exclusion area. Instead, all that it represents is a commitment by the Navy concerning the utilization which it will make, or permit to be made, of the area. Nonetheless, it is conceivable that a sufficiently extensive commitment on the part of the Navy—*e.g.*, an agreement not itself to use or to permit the use by others of the area at all—could be treated as vesting control over the area in the applicants. If such a commitment were made, physical control of the area would still remain with the Navy. But the applicants, by virtue of a contractual right to insist that the Navy exercise that control in a particular manner, might be said to have effective control.

We view the Navy's commitment, however, as being too limited to permit us to hold that the applicants have, even by derivation, the degree of control required by the regulation. To be sure, on its face the somewhat ungrammatical sentence upon which the applicants rely is open to differing interpretations. Taken in isolation, its terms would admit of several possible constructions. First, they could mean that the Navy agreed to seek this Commission's permission before carrying on or permitting any endeavors, including both military operations and agricultural or recreational activities. Secondly, read differently, they might be taken as reserving to the Navy the right to engage in certain military operations but committing the Navy to obtain permission before engaging in or authorizing agricultural, recreational, or any other activities. Thirdly, from another standpoint, they might be regarded as indicating that only for "other uses" must this Commission's approval be obtained, and that the Navy is free to conduct or to permit not only military operations but agricultural or recreational pursuits as well.

Selection among these possible choices would be a difficult task if we were furnished no assistance beyond the words themselves. But there are other factors which necessarily influence our decision and require us to reject the first two, and to accept the third, of the possible meanings outlined above.

In the first place, as the Final Environmental Statement reveals, Camp Pendleton has traditionally been used not only for military operations but for

[28] See the March 13, 1975 "Applicants' Response . . .," pp. 5-6. See also the "Applicants' Further Memorandum . . ." of January 22, 1975, p. 3.

agricultural and recreational purposes;[29] it would not be surprising for the Navy to wish to reserve its right to continue those pursuits (except within the station site) without the need to obtain Commission approval. After all, the station site by itself occupies nearly the maximum amount of territory—90 acres—which Congress authorized to be transferred to the applicants. The total land portion of the exclusion area is well over four times that size. Even if the legislation authorized it to do so—and the "if" may be a big one[30]—the Navy might well have been reluctant to part with the absolute right to continue to put such a large amount of territory to traditional uses.

Another reason for rejecting the interpretation which the applicants would press upon us is that it is inconsistent with the subsequent conduct of the parties to the easement. Such conduct, of course, can be an important guide in discovering the intent of the parties. In this connection, the record contains no indication that the Navy sought the permission of, or even furnished notification to, either the applicants or the staff before leasing the two parcels of land within the exclusion area to the State for development as a park; nor does it appear that the applicants, if they were notified, sought to determine whether the lease was acceptable to the staff.[31] This suggests to us that the interpretation of the easement now put forward by the applicants is not shared by the Navy and does not reflect the intent of the parties. In addition, the existence of the plans to establish public facilities in the area without the applicants' consent serves to point up the ephemeral nature of the "control" claimed by the applicants.

For similar reasons, the applicants are not aided by their contention that we should resolve any ambiguity in the easement in a manner which will effectuate the intent of the parties. Of course, we have no quarrel with that proposition. But the applicants see a broader intent than do we. The intent which the applicants would have us effectuate is "the intention of the United States as grantor [which] was clearly expressed by the Congress of the United States in the enabling legislation and by the Secretary of the Navy in the granting language of the easement itself," *i.e.*, the intent "to convey to the Applicants all rights necessary to enable the construction and operation of nuclear powerplants on the site."[32]

We can agree with the applicants that the Congress undoubtedly intended to lay the groundwork for the applicants to proceed. We perceive no indication,

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[29] FES, pp. 2-5, 2-8 to 2-10. For example, the Enlisted Men's Beach Club has for some time been situated not far outside the northern end of the proposed exclusion area.

[30] See fn. 13, *supra*.

[31] The staff's February 24, 1975 brief represents (p. 11, fn. 16) that "to the best of our knowledge", the lease was executed "without any prior inquiry . . . as to the acceptability to the AEC of developing the offsite exclusion area as proposed." The applicants' response contains no representation to the contrary.

[32] "Applicants' Response . . ." of March 13, 1975, p. 6.

however, that the Congress wanted this Commission to ignore either the Atomic Energy Act or its implementing regulations in passing upon the adequacy of the applicants' proposal. And, while the Secretary of the Navy may have had in mind the underlying purpose of granting the applicants what they needed to construct and operate their generating units, we have seen that other purposes, as well as questions as to the territorial extent of his authority, may also have guided him. Particularly in view of his subsequent conduct, we cannot say that his intent was as broad as the applicants would have it. The applicants' argument would be better addressed to the Secretary of the Navy, in an attempt to convince him to grant them the control which they will need if they wish to continue to utilize an exclusion area of the size of that presently proposed.

In short, we do not read the easement as granting the applicants the authority required by the regulation, *i.e.*, the power to "determine all activities including exclusion or removal of personnel and property from the [exclusion] area." As we construe the easement, the Navy has reserved the unqualified right itself to use, or to permit others to use, the offsite portion of the exclusion area for military operations and agricultural and recreational pursuits; it is only with respect to "other uses" that the Navy has made a commitment to do or to permit only what this Commission will allow. That is not enough.

c. In reaching this conclusion, we are not unmindful of the applicants' suggestion that no weight should be accorded to the existence of the lease to the State. This suggestion is based upon the provision in the lease—which we assume would be implied by law in any event—stating that it "is subject to all outstanding easements and rights of way for location of any type of facility over, across, in and upon the Leased Property, or any portion thereof . . . ."[33] Relying on this provision, the applicants argue that the lease to the State has to give way.

This argument is unavailing, for it is essentially circular. The lease contemplates recreational pursuits. If our interpretation of the applicants' easement is correct, then it is not at all clear that the easement gave the applicants any rights which are infringed by the lease. For, as we have held, the applicants' easement reflects no commitment by the Navy and "its successors and assigns" to refrain from, or to seek permission to engage in, recreational activity.

d. The applicants make one other argument which we should touch upon briefly. They assert that the staff's change in position with respect to the acceptability of the exclusion area is unjustified, in that "the scope and terms of the Applicants' authority to control activities within the offsite exclusion area have been well known to the staff . . . for more than ten years, and to this very

[33] Lease, Part II, paragraph C; "Applicants' Further Memorandum . . ." of January 22, 1975, pp. 3-4.

day remain unchanged."[34] In the same vein, albeit only in connection with the status of the beach (see p. 394, *supra*), the applicants assert that "proper application of the doctrines of *res judicata* and equitable estoppel should preclude such a change in position."[35]

In making this argument, the applicants overlook that the staff is but one of the parties to this licensing proceeding, and that the positions which it may take are in no way binding upon us. The boards have independent responsibilities to fulfill, and the actions of the staff cannot compel a board to adopt a particular position. In this connection, while the applicants urge us not to entertain the staff's recently changed position, it was this Board—not the staff—which first raised the questions concerning the acceptability of the exclusion area which have now been resolved against the applicant.

In the course of its *res judicata* argument, the applicants make reference to the Licensing Board's initial decision on San Onofre Unit 1 (*supra*, p. 394).[36] While the applicants rely on that decision for a different purpose, we have examined it to see if anything therein conflicts with our holding as to the nature of the interests conveyed by the easement. No conflict exists. For, at the time the Unit 1 initial decision was issued, the easement had not yet been granted. Consequently, that decision simply reflects that "easements for the use of the plant site and related offsite facilities *will be granted* to [the applicants] by the Secretary of the Navy pursuant to special enabling legislation which has been passed." 2 AEC at 372 (emphasis added). In short, then, no licensing or appeal board has previously passed upon the question as to whether the easement granted the applicants control sufficient to satisfy the Commission's regulations.[37]

e. We need add only that, in reaching our decision on this phase of this case, we have not ignored the preamble to Part 100, which indicates that that Part is not intended to identify or quantify all factors relevant to the acceptability of a proposed site. 10 CFR 100.1. In that sense, Part 100 is only a guide, and it states explicitly that "any applicant who believes that factors other than those set forth in the guide should be considered by the Commission" may attempt to "demonstrate the applicability and significance of such factors." *Ibid.* Similarly, 10 CFR 2.758 establishes a "special circumstances" rule which allows a party to request "that the application of a specified Commission rule or regulation . . . be waived or an exception made" on the ground that "special circum-

[34] "Applicants' Response . . ." of March 13, 1975, p. 7. The statement is not precisely accurate, for the lease from the Navy to the State, which caused us to focus on the exclusion area problems, is of recent vintage.

[35] *Id.* at 13.

[36] That decision became the final decision of the Commission on the Unit 1 construction permit.

[37] No hearing on Unit 1 was held at the operating license stage.

stances . . . [in] the particular proceeding are such that application of the rule or regulation . . . would not serve the purposes for which [it] . . . was adopted."

The applicants have not attempted to invoke either of these provisions. That being the case, we must enforce the regulations as written.[38] We have stressed before that all parties to licensing proceedings must be treated equally.[39] Among other things, this requires that applicants and staff, as well as intervenors, be bound by Commission regulations. We have refused to entertain direct challenges to regulations presented by intervenors;[40] similarly, we have refused to approve a staff proposal which we viewed as involving an indirect challenge to the regulations.[41] Applicants can be treated no differently; they cannot be allowed to disregard the plain requirements of the regulations. If a regulation forbids a proposal which comes before us, our duty is to say so.

C. We hold, then, that the applicants do not have the requisite authority over the proposed exclusion area. This being the case, we have the power now to lift the construction permits.[42] But once a utility company is informed that an aspect of its application is unacceptable, it is free to attempt to modify its proposal to bring it into compliance.[43] In this instance, it may be possible for the applicants before us now to make adequate adjustments to their proposal.[44]

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[38] We do not mean to intimate that a request under the "special circumstances" rule would have met with any success here. In calling attention to that rule in ALAB-248, we had in mind primarily the possibility that, while the applicants themselves might not have had the control required by the regulations, the existence of control in the Navy might be viewed as a "special circumstance." As it has turned out, we have considered and rejected a quite similar argument on the ground that the Navy had not made a commitment to exercise its control in a manner suitable for the applicants' needs (see pp. 396-398, *supra*).

[39] *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Station), ALAB-194, RAI-74-4 431, 445 and ALAB-229, RAI-74-9 425, 434.

[40] See, *e.g., Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-226, RAI-74-9 381, 402.

[41] ALAB-229 (*supra*, fn. 39), reversed on the ground that the staff proposal was not inconsistent with the applicable regulation, CLI-74-40, RAI-74-11 809.

[42] Had the Licensing Board concluded, when the proceeding was pending before it, that the proposed exclusion area did not pass muster, it could have refused to authorize the staff to issue the requested permits. Our power is no less extensive than the Licensing Board's. 5 USC 557(b).

[43] Permitting an applicant to correct any deficiencies is not peculiar to proceedings under the Atomic Energy Act. See, *e.g.*, the federal pesticide laws, permitting a pesticide registrant to respond to a notice of intent to cancel the registration of its product by "mak[ing] the necessary corrections, if possible." 7 USC 136d(b) (Supp. II, 1970).

[44] For example, the applicants may propose to reduce the size of the exclusion area so that it encompasses only territory over which they now have, or can obtain, the required control. It may even be possible to make the exclusion area coincide with the existing station site, or a modestly reshaped one, and still not exceed applicable radiation dose limitations. In this connection, we note that many reactors have exclusion areas of appreciably less than 800 meters.

In deciding what remedial measures to impose, we should not ignore the realities of the situation. Construction of these two units has been underway for over a year.[45] If the deficiencies we have found either posed a hazard during construction, needed to be corrected before further construction took place, or were uncorrectable, or if significant environmental harm might come from continued construction, it would be appropriate to vacate now the Licensing Board's grant of authority to issue the construction permits. But none of these conditions is present here. Thus, we perceive little justification for invoking now our power to lift the permits. Of course, if the applicants desire to continue construction pending the final resolution of the exclusion area questions, they will be doing so at their own financial risk.

Consequently, while we are vacating that portion of the Licensing Board's decision approving the proposed exclusion area, we are doing so without prejudice to the applicants' right to make the necessary corrections and without at this time suspending the construction permits. We will allow the applicants a reasonable time to present an alternative proposal to the staff. In the meantime, we are retaining jurisdiction of the proceeding. If no alternative proposal is submitted to the staff within a reasonable period, we will, on motion of a party or on our own motion, issue an order to show cause why the construction permits should not be revoked. If such a proposal is submitted to the staff, notice of that fact, accompanied by a copy of the proposal, is to be sent at that time to the other parties and to this Board. Thereafter, we will determine what further proceedings are called for.

D. Owing to the nature of our holding on the control question, we need not reach other questions in the case. Specifically, we do not believe it appropriate to attempt now to rule on the serious question as to whether, if the applicants had the requisite control, the activities now contemplated for the park and beach areas could be allowed "under appropriate limitations" on the ground that "no significant hazards to the public health and safety will result." For one thing, the staff has submitted new data affecting one aspect of that subject, which the applicants have not had the opportunity to address fully. In addition, an amended proposal by the applicants could change the picture significantly with respect to both the size of the exclusion area and the nature of the activities contemplated therein. Thus, it appears to us that the resolution of the questions as to whether the activities contemplated for the various segments of the exclusion area present significant hazards should abide the event of further proceedings.[46]

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[45] The permits were issued on October 18, 1973. Construction was suspended for a period during the pendency of State administrative and judicial proceedings concerning the protection of the bluffs on the site. See ALAB-171, RAI-74-1 37.

[46] We remain of the opinion that the presence of "large numbers of overnight campers" within an exclusion area is, at minimum, not a desirable situation. See ALAB-248, *supra*, RAI-74-12 at 966.

In that connection, in order to furnish guidance to the parties and thus avoid the possibility of even further delay in the ultimate resolution of this matter, we should express our opinion on one additional topic. In ALAB-248, we suggested that considerations of plant security might have a role to play in determining the acceptability of a proposed exclusion area. RAI-74-12 at 966. The staff seems to contend that that suggestion was not well taken; as the staff sees it, security matters are to be addressed but not in connection with Part 100.

We must disagree. We perceive no basis for reading each portion of the Commission's regulations in isolation. Different regulations can well complement each other, and those covering security plans and exclusion areas have a natural interdependence. Moreover, the exclusion area regulations expressly recognize, in connection with the passageway exception, that intruders into the exclusion area can create a hazard not only to themselves but to the facility as well: passageways are permitted "provided these are not so close to the facility as to interfere with normal operations of the facility ...." This suggests that all activities contemplated for the exclusion area should be scrutinized to determine whether they have the potential "to interfere with normal operations." We see no purpose to be served by ignoring security considerations in this process.

III

One of the issues we disposed of in ALAB-248 was the acceptability of the applicants' proposed low population zone. Resolution of that issue depended in part upon an appraisal of the accuracy of the stated population center distance, *i.e.*, the distance from the reactor to the nearest boundary of a densely populated center of about 25,000 persons. Interpreting the relevant provisions of 10 CFR Part 100, we held that the applicants and staff had chosen the wrong population center and thus had miscalculated the population center distance. Specifically, we determined that they had improperly treated as inconsequential the anticipated growth of San Clemente. Thus, we required that the population center distance be taken as the 2.6 miles to the nearest boundary of San Clemente, rather than the 17 miles to the nearest boundary of the City of Oceanside. That being the case, we directed that the low population zone be reduced from the 3.0 miles proposed by the applicants to 1.95 miles, in order to satisfy the requirement that the population center distance (2.6 miles) be at least $1\frac{1}{3}$ times the distance from the reactor to the outer perimeter of the low population zone. RAI-74-12 at 959-61.

Just recently, the Court of Appeals for the Seventh Circuit discussed similar questions in its opinion reversing a Commission decision which had approved an applicant's proposal to construct a reactor at the Bailly site on the shore of Lake Michigan in northern Indiana. *Porter County Chapter of the Izaak Walton League of America* v. *Atomic Energy Commission*, ____ F. 2d ____ (April 1, 1975, Docket No. 74-1751). Although the court's decision may not be the last

word on the subject (the time for seeking further review has not expired), we believe it appropriate to reexamine our own prior holdings in this case in light of the principles enunciated by the court. As we explain below, we perceive nothing in *Porter County* that requires alteration of the result reached in ALAB-248.

A. In *Porter County,* the court held that the population center distance had to be taken as the 1.1 miles from the Bailly reactor to the nearest political boundary of the City of Portage (which, like San Clemente, was expected to increase in population to beyond 25,000 in the near future) (Slip opinion, pp. 11-15).[47] This being so, the court reasoned, the proposed low population zone of 1.5 mile radius led to a violation of Commission regulations, in that the population center distance was less than, rather than the required $1\frac{1}{3}$ times larger than, the radius of the low population zone (*ibid.*).[48]

In ALAB-248, we followed a similar course up to that point, holding that the proposed San Onofre LPZ of 3.0 miles was too large, given the correct population center distance of 2.6 miles (see p. 402, *supra,* and RAI-74-12 at 960-61). The remedial action we took, however, was significantly different from that mandated by the Seventh Circuit. We simply required that the size of the proposed San Onofre LPZ be reduced to assure compliance with the regulations (see p. 402, *supra,* and RAI-74-12 at 961). In contrast, the Seventh Circuit lifted the Bailly construction permit outright. It is this aspect of the court's decision that prompts us to reexamine the appropriateness of our own decision.

B. In reaching its decision to forbid construction entirely, the court emphasized the obvious: that owing to the situation existing near the reactor, the radius of the 1.5 mile low population zone could not be *increased* to two or

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[47] In holding that the reference in 10 CFR 100.3(c) to the "boundary" of a densely populated center means the political boundary unless dense populations extend beyond political limits, the court rejected a contention that it could have a different meaning when applied to the facts in *Bailly.* (Slip opinion, pp. 13-15). In ALAB-248, we had found it unnecessary to look closely at the precise meaning of the term "boundary". For the facts of record in this proceeding establish that (owing to the existence and location of Camp Pendleton) the city and county political limits coincide with the actual terminus of population concentration. See RAI-74-12 at 960, fn. 7. Thus the Seventh Circuit's holding that the location of the political boundary was determinative would not affect our analysis in this proceeding.

[48] The applicability in *Bailly* had first justified the 1.5 mile LPZ on the ground that, since Portage did not yet have 25,000 people, the nearest population center was Gary, which was 5.5 miles distant. Later it was asserted that, even if Portage were considered a population center, the actual location of the population within Portage was crucial, with the result that its political boundary could be disregarded and the actual boundary of its "nearest heavily populated portion" used instead. See the Licensing Board's initial decision in *Bailly,* reported at RAI-74-4 557, 565. Since the distance to that boundary was said to be 4.5 miles, the requirement that the population center distance be at least $1\frac{1}{3}$ times the radius of the designated LPZ (*i.e.,* 2 miles) would have thereby been satisfied.

three miles (Slip opinion, pp. 29-32).[49] But the court did not pause expressly to indicate whether (and if so to explain why) it believed it inappropriate for the applicant to consider the possibility of *reducing* the size of the low population zone, thereby bringing the relative size of that zone and the population center distance into the proper relationship.[50] We believe it fitting, in these circumstances, to set forth in somewhat greater detail than we did in ALAB-248 the justification for our conclusion that the San Onofre LPZ could be reduced from 3.0 to 1.95 miles and to explain why the staff documents referred to by the Seventh Circuit (see fn. 49, *supra*) do not affect that conclusion.

1. At the outset, we should explain precisely how it is that the low population zone concept operates to enhance safety. A low population zone must be of such a size that a person located at its outer boundary who is exposed to the post-accident radioactive cloud during the whole period of its passage overhead would not receive a radiation dosage in excess of certain "reference" levels. 10 CFR 100.11(a)(2); see also RAI-74-12 at 959, 961.[51] Additionally, the situation in the interior of the zone must be such that persons located therein (a relatively low number) can be protected, by evacuation or otherwise, from receiving a larger radiation dosage in the event of an accident. Finally, of course, there must be no "population center" reaching to within one-third again the distance from the reactor to the zone's outer boundary.

In other words, the *maximum* possible size of the LPZ for any particular reactor is inflexible, being set by the proximity of that reactor to the nearest population center. It may not be permissible to utilize an LPZ of that size, however, for it may include more people than can be protected by evacuation or other measures following an accident. An LPZ of smaller radius may thus have to be selected.

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[49] The two and three mile distances were mentioned in two documents, prepared by the staff but not in connection with the *Bailly* proceeding, upon which the court relied. The two documents are entitled "AEC Regulatory Staff Working Paper, Population Distribution Around Nuclear Power Plant Sites", dated April 17, 1973 (hereinafter referred to as the "Staff Working Paper"); and "Draft Regulatory Guide 4.7, General Site Suitability Criteria for Nuclear Power Stations", issued in September 1974 (hereinafter referred to as the "Draft Guide").

[50] The population center distance is, of course, unalterable, being fixed by the existence and location of the nearby population concentrations. Given a population center distance of 1.1 miles, the *Bailly* applicant would have to cut the radius of the LPZ almost in half, from the proposed 1.5 miles to approximately 0.82 mile, to achieve compliance with that aspect of the regulations.

[51] These doses are the same as those permitted at the perimeter of the exclusion area (see p. 387, *supra*) but the time of exposure is different. The dose rate would, of course, be higher at the border between the exclusion area and the low population zone than it would be at the LPZ's outer boundary. But the regulations requiring that protective measures be taken in the LPZ contemplate that a person would not remain at the edge of the exclusion area (or anywhere else inside the LPZ) unprotected for a lengthy period.

In that connection, the *minimum* permissible size of an LPZ depends on the nature of the engineered safeguards designed into the particular facility to limit radioactive emissions. (See pp. 405-406, *infra*). That minimum size is, therefore, flexible and can be reduced as the extent of the engineered safety features is increased. Contrary to the Seventh Circuit's apparent belief (which it seemingly derived from the staff documents referred to in fn. 49, *supra*), there is no *arbitrary* minimum—of two or three miles, or some other distance—which the regulations place on the size of the LPZ. That is, within the limits of the constraints just mentioned, all of which depend on the facts of the particular case, there may be the approval of a low population zone of any dimension.[52]

2. In light of these concepts, there are a number of methods for adjusting a low population zone which does not pass muster as originally proposed. The court mentioned only the possibility of increasing the size of the zone. That remedy, among others, might be suitable if the calculated dosages at the outer boundary of the LPZ were excessive; by moving the boundary outward, the dosages at the boundary would be reduced.[53] (Of course; as the court recognized, the boundary cannot be moved outward if a population center is close at hand or if doing so would bring so many people within the LPZ that it would not be possible to take "adequate measures for their protection" in the event of an accident).

Precisely the opposite change—*i.e.*, decreasing the size of the LPZ—might prove to be suitable as a remedy for other deficiencies. For example, if the territory encompassed by the proposed LPZ includes too many people in need of evacuation and not enough routes to accomplish that aim, the LPZ would have to be reduced to a manageable size. Or if—as occurred here and in *Bailly*—the boundary of a population center came too close to, or encroached upon, the LPZ, the radius of the LPZ would have to be decreased.

Having said that, we should elaborate on what was only touched on in ALAB-248 (see RAI-74-12 at 961). An LPZ cannot be reconstructed simply by inscribing a new circle of smaller radius on a map and submitting the map to the Commission. An applicant must be able to show that the radiation dose limits can be met at the edge of the new, smaller circle. An applicant may be unable to do this without redesigning the facility to add different engineered safeguards,

[52] The same may be said with respect to the exclusion area, so long as the constraints applicable to exclusion areas are observed. See pp. 387-388, *supra*.

[53] Alternatively, additional equipment to reduce the calculated dosage could be added on to the facility.

filters and other equipment.[54] The result of following that course would be to reduce the dosage that would be encountered at any given distance from the plant. An additional effect would be to alter the form of protection afforded to those persons who were located within the original LPZ but who find themselves outside the new, smaller one. Those people would no longer need to depend upon evacuation or taking shelter; instead, they could remain where they are, protected by the additional equipment which would result in their receiving less radiation than would have been encountered otherwise.

Similarly, if a population center is viewed as "too close" to the LPZ, it does not necessarily follow that, in order to satisfy the regulations, the applicant must move either the reactor or the people.[55] In some circumstances, adding sufficient protective equipment to the facility will enable the applicant to draw the LPZ closer, so that its radius is sufficiently less than the population center distance. This meets the terms of the regulation. It has a corresponding impact in the real world, even though the actual distance between the reactor and the population center remains the same. In terms of protection from radiation, the additional safeguards built into the facility serve to increase the effective distance between the reactor and the people.

In other circumstances, an even simpler remedy may be available. For, in some instances, applicants may propose an LPZ which is unnecessarily large in light of the protective equipment already planned for the facility. Where that occurs, the LPZ can be diminished in size without requiring design changes. We said this about the San Onofre facility in ALAB-248: ". . . it may turn out that the present design will prove sufficient" to insure that the radiation dosage limits will not be exceeded at the new LPZ boundary in the event of an accident. RAI-74-12 at 961.

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[54] We explained this in similar terms some time ago in another proceeding, with respect to a situation in which there was some question as to the extent of the population growth expected to occur in the low population zone. There we said:

> Further consideration will have to be given to reduction of the low population zone if there is a substantial increase in the nearby population. Any such reduction in the outer boundary of the low population zone might necessitate changes such as an increase in the filter equipment through which radioactive gases are released to the atmosphere following an accident, and/or more stringent restrictions on the allowable containment leakage rate. With proper design [and] planning, such modifications can be accomplished, if required, either before or after operation commences. [Footnote omitted].

Long Island Lighting Co. (Shoreham Station), ALAB-156, RAI-73-10 831, 848 (October 26, 1973).

[55] Moving the people is, of course, normally not an available alternative. See fn. 50, p. 404, *supra*, and first sentence of last paragraph of text on p. 404, *supra*.

3. This explanation of the meaning of the Commission's regulations exposes the flaw in the unofficial staff papers which influenced the Seventh Circuit's thinking (see fn. 49, *supra*).[56] The "Staff Working Paper" suggests that in

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[56] The Seventh Circuit indicated that the two staff documents could not be used to supersede the Commission's regulations, but were useful "merely as an expression of at least some AEC expertise to be examined in areas where the regulations are not clear or specific." (Slip opinion, p. 28). In that connection, the court "assume[d] that if [the documents] offered no guidance, the AEC would not have issued and released them." (*Ibid.*)

As is plain on their face, the documents in question were prepared and issued by the staff, not by the Commission itself. To be sure, the release of the working paper was accompanied by an AEC press release, but that was only because a request for its production had been directed to the Commission under the Freedom of Information Act. Nothing in either document suggests that the Commission approved of what was said therein.

Indeed, the Draft Guide states on its cover that guides are issued to set forth "methods acceptable to the AEC Regulatory staff" and that they are "not substitutes for regulations." The Commission itself has said much the same thing: guides actually adopted by the staff "merely set forth methods acceptable *to the regulatory staff* of implementing specific parts of Commission regulations. While they are entitled to considerable *prima facie* weight . . ., these guides do not themselves have the force of regulations." *Vermont Yankee Nuclear Power Corporation* (Vermont Yankee Station), CLI-74-40, RAI-74-11 809, 811 (emphasis in original). That is true of *adopted* guides. The documents upon which the court relied have far less significance—one is only a *draft* guide, and the other is simply an internal staff working paper. This being so, then to the extent the views expressed in those documents are inconsistent with governing regulations, we must adhere to what we said when *Bailly* was before us. At that time, the draft guide had not been issued, but we spoke of the working paper in terms applicable in most respects to both documents:

> It is simply a tentative position proposed by some members of the regulatory staff. It neither represents nor purports to present Atomic Energy Commission policy respecting nuclear power plant sites. That policy is published in the Code of Federal Regulations. 10 CFR Part 100 (1974 rev.). Unless and until modified or changed by the Commission—whether by adoption of the suggestions in the working paper or otherwise—Part 100 governs licensing board decisions on siting matters. . . . The existence of a draft internal staff working paper suggesting the adoption of some other standards, whether known to the Board or not, could not relieve the Board of its obligation to apply the current regulations [footnotes omitted].

ALAB-224, RAI-74-8 244, 254-55 (August 29, 1974). In an earlier decision, we had made a similar observation about the status of the working paper:

> There would appear to be no dispute that the April 17, 1973 document has not yet been promulgated as AEC regulatory policy. There is no indication in the material before us whether it will ever be. . . . [T]he information before us suggests that the document is only an internal working draft and is not . . . [being used] to suppress expert opinion. As such, it has no legal significance for any AEC regulatory purpose.

Consolidated Edison Co. of New York, Inc. (Indian Point Station, Unit No. 2), ALAB-209, RAI-74-6 971, 973 (June 13, 1974).

certain cases an LPZ should have "at least" a two-mile radius (Appendix A, p. 4). But, as we have seen, geographical distances are meaningless without reference to the design of the plant and the resulting consequences that might occur at those distances following an accident. Under the policy embodied in the Commission's regulations, there is no room to insist that an LPZ have some arbitrary minimum dimension.

The "Draft Guide", also referred to by the court, has no greater status in our proceedings than does the "Staff Working Paper." The views expressed therein are, however, more in keeping with the policies adopted by the Commission. To be sure, the Draft Guide does tend to overemphasize the significance of geographical distances when it states (at p. 18) that "a distance of 3 miles to the outer boundary of the LPZ is usually adequate." But it contains other information which serves to place that statement in a proper context. For, just before that, it makes a similar statement concerning the exclusion area but at the same time satisfactorily explains the thought intended to be conveyed by that statement. Specifically, the Draft Guide states (pp. 17-18) that "based on past experience, the Regulatory staff has found that a minimum exclusion distance of 0.4 mile . . . usually provides assurance that engineered safety features can be designed to bring the calculated dose from a postulated accident within the guidelines of 10 CFR Part 100." All this means, as the Draft Guide goes on to explain, is that if a smaller exclusion area is proposed, "it may be necessary to place special conditions on station design (*e.g.*, added engineered safety features) before the site can be considered acceptable." While the Draft Guide does not say so explicitly, it suggests implicitly that similar considerations apply to the LPZ, *i.e.*, that a smaller than "usual" LPZ can be justified if similar precautions are taken. In other words, the arbitrary distances mentioned in the staff documents serve only as guideposts indicating that exclusion areas and low population zones of those sizes will ordinarily permit the applicants to meet the applicable dose limitations with no difficulty, using only standard design and equipment; smaller-sized areas and zones may require additional measures.

Viewing the regulations in the proper light, then, it is plain that the Commission has erected no bar to an applicant's either proposing a "small" exclusion area or LPZ initially, or reducing the size of an exclusion area or LPZ if its first proposal is found unacceptable. We find no reason, then, to depart from our holding in ALAB-248 respecting the appropriate remedy here, given the fact that the nearest boundary (actual and political) of the San Clemente population center is 2.6 miles away: the applicants must reduce the LPZ from 3.0 to 1.95 miles and add such further equipment, if any, as might be necessary to insure that the dose limitations specified in Part 100 are met at the closer distance. To have decreed instead that the applicants must abandon the site simply because of the unacceptability of the proposed 3.0 mile LPZ—without regard to their ability to comply with the dose limitations at the boundary of a 1.95 mile LPZ—would have been to superimpose additional site criteria neither

explicitly nor implicitly established by Part 100 or any other safety regulations of this Commission.[57]

IV

For the foregoing reasons, that portion of the Licensing Board's initial decision which approved the proposed exclusion area is *vacated.* The construction permits are being allowed, however, to *remain in effect* for a reasonable period in accordance with Part II-C of this opinion. Jurisdiction over the proceeding is *retained.*

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Romayne M. Skrutski
Secretary to the Appeal Board

APPENDIX

Public Law 88-82, 77 Stat. 115, reads as follows:

Be it enacted . . . , That the Secretary of the Navy be and he hereby is authorized and empowered to grant to Southern California Edison Company, a California corporation, and to San Diego Gas and Electric Company, a California corporation, and to each of them, their respective successors and assigns, upon such terms and conditions as the Secretary deems necessary to protect the interests of the United States, an easement in, over, under and upon lands of the United States of America, approximately ninety acres in area, within the Camp Joseph H. Pendleton Naval Reservation, California, for the construction, operation, maintenance, and use of a nuclear electric generating station, consisting of one or more generating units, and appurtenances thereto; and easements in, under, over, and upon such additional lands of the United States of America within the Camp Joseph H. Pendleton Naval Reservation, California, as are necessary or desirable for the

[57] In Part II of this opinion, we held that the exclusion area was unacceptable as proposed. The applicants may decide to explore, as one method for curing the defects in the exclusion area, the possibility of reducing its size to an area over which they have adequate control. For reasons similar to those set out in Part III of this opinion, nothing in *Porter County* would forbid them from following such a course, so long as the applicable radiation dose limitations were not exceeded at the new boundary.

purpose of constructing, operating, maintaining, and using electric transmission and communication lines, switchyards and substations, cooling water conduits, pipelines for water, gas and sewage, railroad spur tracks, access roads and other appurtenances to said facilities and to said nuclear electric generating station.

Sec. 2. Upon such terms and conditions as he deems necessary to protect the interests of the United States and within the scope set forth in Section 1, the Secretary or his successors in interests, may amend any such easement by mutual agreement of the parties thereto, or their successors in interest, in such manner as to change the lands affected thereby, either by substitution, addition or deletion, as well as to change the terms and conditions of the grant.

Sec. 3. A reasonable charge, which may be paid in installments or in a lump sum or in a combination thereof, as determined by the Secretary, or his successor in interest, based upon the fair value of each easement granted pursuant to the authority herein contained, shall be payable by the grantee or grantees thereof, their respective successors and assigns.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-269

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Richard S. Salzman, Chairman
Dr. John H. Buck, Member
Michael C. Farrar, Member

In the Matter of

Docket No. 50-471

BOSTON EDISON COMPANY, ET AL.

(Pilgrim Nuclear Generating Station, Unit 2)

Messrs. George H. Lewald and Dale S. Stoodley, Boston, Massachusetts, for the applicants, Boston Edison Company, *et al.*

Mr. and Mrs. Alan R. Cleeton, appellants, *pro se*

Mr. Jerome S. Cohen, Washington D. C., for the Nuclear Regulatory Commission Staff

Upon appeal from interlocutory order of Licensing Board rejecting specific contention of intervenors, Appeal Board rules that because appellants remain parties to the proceeding, their right to appellate review of that rejection is only by means of exceptions from the Board's ultimate decision.

Appeal dismissed.

RULES OF PRACTICE: APPELLATE REVIEW

Except where an interlocutory order rejecting a party's proposed contentions has the effect of dismissing the party from the proceeding, Commission rules postpone its right to obtain appellate review of that order to the conclusion of the proceeding. See 10 CFR §2.730(f) and 10 CFR §2.714a.

DECISION

April 28, 1975

A consortium of utility companies led by the Boston Edison Company has applied for permission to construct a second nuclear-powered generating station at the "Pilgrim" site on the mainland side of Cape Cod Bay, approximately twelve miles north of the Cape Cod Canal. Alan and Marion Cleeton, who are opposed to the new facility, have been permitted to intervene in the Licensing Board proceeding convened to consider the application. The Board admitted a number of the Cleetons' contentions but on February 18, 1975, rejected (among others) their "Contention F" regarding the adequacy of the applicant's emergency evacuation plan. The Board ruled that Contention F presented an issue "not generally considered . . . in construction permit proceedings, such plans becoming ripe for reconsideration at the operating license stage."

On March 14th, the Cleetons, who have chosen to participate without the aid of counsel, moved the Licensing Board to reconsider its ruling rejecting Contention F. The staff supported the Cleetons' motion for reconsideration, urging that, properly construed, Contention F was not directed at the details of the final evacuation plan but merely sought to explore whether any such plan could feasibly be developed in light of the population and geography in the surrounding area.[1] The staff's papers invited the Licensing Board's attention to two decisions of this Board and one of another Licensing Board as holding this issue appropriate for consideration in a construction permit hearing. See *Southern California Edison Company, et al.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, RAI-74-12, 957, 962-63 (December 24, 1974); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, RAI-73-5, 331, 342-43 (May 18, 1973); and *Duke Power Company* (Catawba Nuclear Station, Units 1 and 2), LPB-74-34, RAI-74-5, 861, 868-69 (May 14, 1974).

[1] As clarified by the staff and accepted by the Cleetons, the contention at issue is that: "No procedure for public evacuation can be developed for Pilgrim 2 which will be compatible with the proposed site location with respect to access routes, surrounding population distribution, and surrounding land use as required by Appendix E to 10 C.F.R. Part 50."

The Licensing Board declined to reconsider its ruling. It held, first, that the Cleetons' reconsideration motion was out of time[2] and, second, even were it timely, that the existence of an emergency evacuation plan for Pilgrim Unit 1 at the same site rendered it unnecessary (apparently as a matter of law) to consider the feasibility of a plan for Unit 2 in the construction permit hearing.

The Licensing Board's order denying reconsideration was rendered on April 3, 1975. On April 11, 1975 the Cleetons noted this appeal. In it they ask us to direct the Board below to consider their Contention F.

The staff and the applicant contend that the appeal should be dismissed. We agree. The Licensing Board's rejection of the Cleetons' Contention F did not end their participation in the proceedings below. They remain intervenors and the Board will consider a number of their other contentions. The order in question is therefore interlocutory, undoubtedly but one of many such rulings the Licensing Board will be called upon to make during the course of the proceeding. Interlocutory rulings, including ones dealing with proposed contentions, are not exempt from appellate review. It has been long determined, all things considered, that proceedings can be conducted most efficiently if the right to obtain appellate review of interlocutory orders is deferred to an appeal at the end of the case. The Commission's Rules of Practice so provide and we must follow them.[3]

Our dismissal of this appeal on procedural grounds of course connotes no agreement with the ruling below, *viz.*, that the feasibility of developing a suitable evacuation plan need not be explored in a construction permit proceeding where

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[2] The Board's initial order excluding the Cleetons' Contention F was rendered on February 18, 1975. The Commission's Rules of Practice allow a private party five days after service (the staff has ten days) in which to petition for reconsideration of a ruling, such as this one, reflecting action taken at a prehearing conference. 10 C.F.R. §2.751a(d). Given the time allowed for service and excluding weekends, the Cleetons' motion for reconsideration was due for filing by February 28th. Since it was not mailed until March 14th, it was two weeks late. Of course the delay did not deprive the Licensing Board of authority to act on the motion, as the Commission's Rules allow it to extend the time for filing a motion to reconsider whether "for good cause shown" or "by stipulation." 10 C.F.R. §2.711(a). Although the motion to reconsider was opposed, it was not accompanied by any request or stipulation for extra time.

[3] See 10 C.F.R. §§2.714a and 2.730(f); *Pacific Gas and Electric Company* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-213, RAI-74-6 999 (June 18, 1974). *Philadelphia Electric Company* (Fulton Generating Station, Units 1 and 2), ALAB-206, RAI-74-5 841 (May 22, 1974); *Potomac Electric Company* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-176, RAI-74-2 151 (February 22, 1974); *Louisiana Power and Light Company* (Waterford Steam Electric Station, Unit 3), ALAB-168, RAI-73-12 1155 (December 20, 1973).

such a plan exists for another reactor existing at the same site. Similarly, our action here also does not reach the question, urged on us by the applicants but not decided by the Board below, whether there is any need to plan for emergency evacuation of people from areas beyond the outer boundary of the plant's low population zone. Those issues may be lurking in the proceeding, but they are not appropriate for our consideration at this time.

Appeal *dismissed.*

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-14

ATOMIC SAFETY AND LICENSING BOARD

Marshall E. Miller, Chairman
Margaret M. Laurence, Member
Sidney G. Kingsley, Member

In the Matter of

KANSAS GAS AND ELECTRIC COMPANY AND KANSAS CITY POWER AND LIGHT COMPANY

(Wolf Creek Generating Station, Unit No. 1)

Docket No. 50-482A

April 1, 1975

Licensing Board denies City of Osawatomie's petition for antitrust intervention, holding that contentions (which concern applicant's rate structure) do not satisfy requirements of 10 CFR §2.714, since they neither (1) allege facts showing an existing or threatened situation inconsistent with antitrust laws, nor (2) specify how proposed license conditions fail to deal adequately with any claimed anticompetitive situation.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

Supervision over transmission rates is the particular province of the Federal Power Commission, see *Louisiana Power and Light Co., Waterford Unit 3* (LBP-74-78), RAI-74-10 at 734; where rate questions do not rise to the level of antitrust implications appropriate for consideration by the Commission under §105c(5) of the Atomic Energy Act, and where the FPC is presently considering the same rate issues as those raised by petitioner, the FPC is the proper forum for resolution of those issues.

MEMORANDUM AND ORDER DENYING PETITION OF THE CITY OF OSAWATOMIE FOR LEAVE TO INTERVENE

The City of Osawatomie, Kansas, has filed a petition for leave to intervene in this proceeding in which Kansas Gas and Electric Company and Kansas City Power and Light Company seek a construction permit for a nuclear power

reactor to be known as Wolf Creek Generating Station No. 1. The City requests a hearing pursuant to the Commission's regulations, 10 CFR 2.714, on antitrust considerations relating to the project, and requests as ultimate relief that the proposed license conditions be modified

> to assure that unfair, unreasonable or unlawful rates, terms and conditions not be exacted (initially or otherwise) by KCP&L for providing services required by the conditions, that KCP&L's systemwide transmission obligation be fully and definitively stated,

and that KCP&L be required to establish

> an appropriate, complete, definitive proposal covering all proposed rate provisions, terms and conditions of participation, along with the latest cost estimates in reasonable detail, and that the Commission take such other action as may be shown to be appropriate.

We find ourselves compelled to deny the City's application for intervention, on the ground that neither in its petition nor otherwise has it disclosed allegations substantially complying with the Commission's regulation governing intervention, 10 CFR 2.714, sufficiently to justify allowing its participation as a party in this proceeding.

The underlying facts are summarized in our memorandum and order of March 27, 1975,[1] concerning the petition of Kansas Electric Cooperatives, Inc., for leave to intervene. It is sufficient to add here certain additional facts which concern the City of Osawatomie and Kansas City Power and Light (KCP&L), the applicant with which Osawatomie is directly concerned.

In its analysis conducted pursuant to the antitrust provision of the Atomic Energy Act of 1954 (Section 105, 42 USC 2135), the Department of Justice found that KCP&L had in the past engaged in various anticompetitive activities and that there were indications that smaller utilities had been unable to secure from it adequate assurance that access to the Wolf Creek nuclear facility would be made available on reasonable terms and conditions. The Department therefore obtained from KCP&L comprehensive commitments concerning the offer of access to the unit and the opportunity for coordination of operations by smaller utilities in and near its service area. It concluded that an antitrust hearing concerning the applicants' policies will not be necessary if the requested license is conditioned as agreed to by the Department and the applicants.

Analysis of the City's petition for intervention has not disclosed factual allegations of a situation inconsistent with the antitrust laws, nor of any specific respects in which it claims that the activities under the license, or the conditions to which KCP&L has agreed, would create or maintain a situation inconsistent with the antitrust laws.

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[1] LBP-75-13, NRCI-75/3, 268.

On February 3, 1975, we issued a memorandum and order directing oral argument on the petitions for leave to intervene filed by both Kansas Electric Cooperatives, Inc., and the City of Osawatomie, to be held on February 28, 1975. The order extended until February 14, 1975, the time within which any party might respond to the petitions for leave to intervene. The City of Osawatomie did not at any time file a motion for leave to serve an amended petition. But on February 28, 1975, after the conclusion of oral argument on the petition of Kansas Electric Cooperatives and immediately before argument on the City's petition, its counsel offered for filing a voluminous document entitled "Supplement to Petition of Osawatomie to Intervene and Request for Hearing." That document is in fact an amended petition for intervention, and no reasonable excuse was given for its submission at that time (Tr. 114). We accepted it only in the absence of objection by the other parties, and with the admonition that the action was not to be taken as a precedent. We have concluded that it fails to furnish any material new factual allegations.

In essence, the City's petition contends that the applicant KCP&L should be required to spell out in detail all rates, terms and conditions relating to the policy commitments contained in the participation agreement. The proposed license conditions to which KCP&L has agreed constitute a comprehensive set of commitments that will provide for bulk power supply coordination. Such agreed conditions include the right of interconnection, the coordination and sharing of reserves, the purchase and sale of various classes of bulk power, access to Wolf Creek power and future nuclear units by an ownership interest or unit participation, comprehensive transmission and wheeling services including joint planning of future transmission lines, and safeguards to assure fair and reasonable application of the conditions.

The petition fails to allege facts showing an existing or threatened situation inconsistent with the antitrust laws, nor does it specify how the proposed license conditions fail to deal adequately with any claimed anti-competitive situation. It is unreasonable to require this Commission to frame detailed rate and interconnection provisions, dealing with relatively minute specifics, for the 40-year period to be covered by the proposed license. This is especially true in view of the fact that there is presently pending an informal conference proceeding before the Federal Power Commission involving the same issues of rates, terms and conditions.

Clearly the Federal Power Commission has the requisite jurisdiction and expertise to resolve the issues of the fairness of the instant transmission rates and rate schedule. Comity between sister commissions, as well as considerations of avoiding duplication of effort, would indicate that the pending FPC proceedings provide an adequate forum for the city. This is consistent with the recent conclusion of the licensing board in *Louisiana Power and Light Company,*

Waterford Unit 3, Docket No. 50-382A, that "... supervision over rates is the particular province of the Federal Power Commission and the Board is neither qualified nor authorized to pass on the appropriateness of transmission rates."[2]

We need not hold that the FPC is the exclusive rate making authority, nor that rate questions might not under appropriate circumstances rise to the level of antitrust implications to be considered by this Commission in prelicensing antitrust review under Section 105c(5). However, this is not such a case. Accordingly, it is

ORDERED that the petition of the City of Osawatomie for leave to intervene in this proceeding is denied.

THE ATOMIC SAFETY AND LICENSING BOARD
established to rule on petitions for intervention

Margaret M. Laurence, Member

Sidney G. Kingsley, Member

Marshall E. Miller, Chairman

Issued at Bethesda, Maryland,
this 1st day of April, 1975.

[2] RAI-74-10, p. 734, October 24, 1974.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-15

ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Chairman
Dr. Richard F. Cole, Member
Dr. A. Dixon Callihan, Member

In the Matter of

BOSTON EDISON COMPANY, ET AL.

(Pilgrim Nuclear Generating Station, Unit 2)

Docket No. 50-471

April 2, 1975

Upon Cleeton intervenors' request for response by the Board to their December 5, 1974 "motion" to dismiss the construction permit application, Licensing Board finds request ineffective and inappropriate on procedural grounds, in that (1) it is not a proper motion under 10 CFR §2.730; (2) it is inept as a motion for summary disposition under 10 CFR §2.749; (3) it is premature in its filing; and (4) it appears to have been withdrawn.

Request for response to motion dismissed.

RULES OF PRACTICE: MOTION FOR SUMMARY DISPOSITION

Because of the mandatory hearing requirement of Section 189 of the Atomic Energy Act, there is no procedure (short of withdrawal by the applicant) for a board to dispose of a construction permit application without a hearing.

MEMORANDUM AND ORDER

The Board is in receipt of a pleading filed by the Intervenors Alan and Marion Cleeton entitled "Request for Response by the Board to Our December 5, 1974 Motion" filed under date of February 24, 1975. The Applicant has filed a reply to this "request" under date of February 28, 1975.

The Intervenors request that the Board "respond" to ". . .our December 5, 1974 (sic)[1] motion to dismiss the construction permit application in the

[1] Intervenors are apparently referring to the views they expressed during the prehearing conference held on December 4, 1974.

above-captioned matter on the basis then given: Adequate reprocessing and disposal facilities are not available." Intervenors apparently are relying upon their Contention K referred to in a separate Order being issued herein. The "request" also refers to the Board's Memorandum and Order of February 18, 1975 regarding scheduling, which matter has already been disposed of by the Board's Order of March 6, 1975, and needs no further consideration herein.

With regard to the former portion of Intervenors' "request," there appears to be no record of a "motion" filed by Intervenors as such. It appears that, in the original stipulations submitted to the Board for its consideration at the December 4, 1974 Prehearing Conference, there was contained in a document, dated November 26, 1974, entitled "Stipulation of Alan R. and Marion W. Cleeton," reference to the new Contention K of Intervenors Cleeton. In that document and following the language of the proposed contention, the Intervenors included a sentence reading "On this basis alone, we move that the application be denied." In a Staff response, dated December 6, 1974, pursuant to Board permission granted during the Prehearing Conference, the Staff gave specific reasons as to the inadequacies of the Cleeton "motion" under the provisions of the Commission's Regulations. The entire matter was discussed during the aforesaid Prehearing Conference (See Tr. 467, et seq.; 472, 475-476). It would appear from the discussion at the Prehearing Conference that the "motion," even if appropriate, was withdrawn if either the Cleeton Contention K or the Commonwealth of Massachusetts Contention 15 was allowed.

Nevertheless, on any one of a number of procedural grounds, the Cleeton request is ineffective and inappropriate under the Commission's Regulations—i.e., it is not a proper motion under 10 CFR 2.730, it is inept as a motion for summary disposition under 10 CFR 2.749 of the regulations; it is premature in its filing; and, in any event, it appears that it was withdrawn upon allowance of Intervenors' Contention K. Accordingly, the Board did not feel it necessary to deal with this matter in its order of February 18, 1975. On substantive grounds, it is clear that, in the face of Section 189 of the Atomic Energy Act of 1954 as amended, and the Commission's pertinent regulations affecting mandatory hearings on applications for construction of nuclear power plants, there is no procedure (short of withdrawal by the Applicant) for the disposition of such an application without a hearing, as apparently requested by the Cleetons in this regard (See 42 USC Section 2.239 10 CFR Section 2.104).[2] It must be pointed out that a Licensing Board is not required to respond to every ineffectual request for action made by a party, particularly when no provision therefor is contained in the Commission's Regulations.

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[2] Cf. *Consumers Power Company* (Midland Plants Units 1 and 2) Commission Memorandum and Order of January 21, 1974, RAI 74-1, 7, 9-10. The Board also notes the procedural discrepancy between the original request on December 4 that the application "be denied," and the instant "request" that the application "be dismissed."

Accordingly, the above-described Cleeton "request" IS DISMISSED.

Dr. A. Dixon Callihan and Dr. Richard F. Cole, Members of the Board, join in this Memorandum and Order.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Esq., Chairman

Dated at Bethesda, Maryland
this 2nd day of April 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-16

ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Chairman
Dr. Richard F. Cole, Member
Dr. A. Dixon Callihan, Member

In the Matter of

BOSTON EDISON COMPANY, ET AL.

(Pilgrim Nuclear Generating Station, Unit 2)

Docket No. 50-471

April 2, 1975

Upon Cleeton intervenors' motion to reconsider, amend and modify Board's February 18, 1975 prehearing conference order, Licensing Board finds (1) no showing of good cause for motion's untimely filing and (2) on the merits, no justification for granting the requested relief.

Motion for reconsideration dismissed.

CONSTRUCTION PERMIT HEARINGS: HEALTH AND SAFETY ISSUES

Where an adjacent facility's operational emergency evacuation plan is to be applicable to a proposed facility, requirements for demonstrating the feasibility of an emergency plan at the construction permit stage have been satisfied, and detailed discussion of evacuation plans in other respects is best considered at the operating license stage.

MEMORANDUM AND ORDER ON INTERVENORS CLEETON MOTION TO RECONSIDER BOARD ORDER OF FEBRUARY 18, 1975

The Board has before it a "Motion to Reconsider, Amend and Modify Order" filed by Intervenors Alan and Marion Cleeton, directed to the Board's Memorandum and Order of February 18, 1975 herein. A response to the motion was filed by the Nuclear Regulatory Commission Staff under date of March 27, 1975.

The Certificate of Service attached to the aforesaid motion states that it was served upon the parties in the proceedings by mail on March 14, 1975. Section 2.715a(d) of the Commission's Regulations, referring to the entry of an order after a prehearing conference, such as the subject Board Order of February 18 herein, provides that "objections to the order may be filed by a party within five (5) days after service of the order . . . ."[1] Further, Section 2.711 provides that the time fixed in the regulations for the performance of any act required or allowed therein "may for good cause be extended . . . by the presiding officer."

The Intervenors make no showing of good cause for the untimely filing of this pleading, almost thirty (30) days after the issuance of the original Board order in this regard. Accordingly, the motion will be dismissed.

Despite the motion's untimeliness, the Board has, in its discretion and in terms of its own responsibilities, nevertheless examined the contents of the motion and finds that, even were it timely, there are no grounds or justification for granting the relief requested therein with respect to reconsideration or modification of the Board's Order of February 18, 1975 ruling on the Cleeton contentions.

Insofar as reference is made therein to Cleeton Contention K, that problem is already dealt with in a separate order being issued herein. With respect to Cleeton Contention F (dealing with emergency evacuation plans), the Board does not agree with the Staff's suggestion, in its pleading, that the Board's original action rejecting Contention F should now be modified to admit a revised and reworded contention at this late stage. Moreover, the purpose which might otherwise exist for considering the feasibility of developing a detailed emergency evacuation plan in connection with a construction permit hearing, as suggested by the Staff, becomes unnecessary in the face of the existence of the operational emergency evacuation plan for Unit 1. That plan will, according to the Applicant's proposals, be applicable to the co-located Unit 2 site (See Pilgrim Unit 2 PSAR, Section 13.3). The Board is still of the opinion that detailed discussion of evacuation plans in other respects is best considered at the operating license stage.

As to Cleeton Contentions J (Price-Anderson) and K (waste storage and disposal), the Board concurs in the reasons advanced by the Staff for rejection of the request for reconsideration of the Board Order of February 18, 1975.

Accordingly, and in light of the foregoing, the above-described Motion by Intervenors Cleeton IS DISMISSED.

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[1] The Staff's Response makes reference, in regard to the matter of timeliness, to 10 CFR Section 2.771(a) which "requires that a petition for reconsideration be filed within ten (10) days of the date of the decision." The cited rule appears in the Section of the Commission's Regulations headed "Final Decision" and deals with petitions for reconsideration thereof. In the Board's opinion, Section 2.771(a) is inapplicable in the present circumstances.

Dr. A. Dixon Callihan and Dr. Richard F. Cole, Members of the Board, join in this Memorandum and Order.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Esq., Chairman

Dated at Bethesda, Maryland
this 2nd day of April 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-17

ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Chairman
Dr. Richard F. Cole, Member
Dr. A. Dixon Callihan, Member

In the Matter of

Docket No. 50-471

BOSTON EDISON COMPANY, ET AL.

April 2, 1975

(Pilgrim Nuclear Generating Station, Unit 2)

Upon applicant's objections to Board's February 18, 1975 order, Board reaffirms prior ruling admitting intervenor contentions relating to (1) technical qualifications of applicant, architect engineer and nuclear steam system supplier; (2) staff inspection practices of nuclear power plant manufacturers supplying plant components and equipment for the proposed facility; (3) the applicant's research and development programs; (4) routine releases of radioactive materials; and (5) availability of long term waste disposal and storage facilities.

Objections overruled.

ATOMIC ENERGY ACT:
SCOPE OF INFORMATION REQUIRED FOR LICENSING

A construction permit applicant must show that it and its agents are technically qualified to construct and operate the proposed plant; the technical qualifications and quality assurance programs of contractors used by applicant become relevant to the extent that the applicant relies on such contractors and their employees.

RULES OF PRACTICE: BURDEN OF PROOF

An applicant has the initial burden of demonstrating compliance with Commission regulations; *prima facie* demonstration of compliance shifts to the intervenors the burden of showing, with specificity, how the applicant's proposals fail to comply with such regulations.

CONSTRUCTION PERMIT HEARINGS: HEALTH AND SAFETY ISSUES

A licensing board may consider past performance of a licensee in the

conduct of a monitoring program in determining whether such licensee has the requisite technical qualifications to design and construct another facility.

MEMORANDUM AND ORDER ON APPLICANT'S OBJECTIONS TO THE BOARD'S ORDER OF FEBRUARY 18, 1975 ADMITTING CERTAIN CONTENTIONS

The Board has before it for consideration a pleading filed by the Applicant under date of February 28, 1975, pursuant to 10 CFR 2.715(d), objecting to the Memorandum and Order of the Board dated February 18, 1975 admitting certain contentions of the Intervenors as issues in this proceeding. The Staff of the Nuclear Regulatory Commission has filed a response to Applicant's objections under date of March 12, 1975.

APPLICANT'S OBJECTIONS TO COMMONWEALTH CONTENTIONS

Applicant objects to the admission of Commonwealth Contention 10 dealing with the technical qualifications of the Applicants and their architect engineer and nuclear steam system supplier and asserting that the Applicants cannot supply an adequate quality assurance program based on their previous record. The grounds for Applicant's objection are that the Commission's rules and decisions do not provide for inquiries into the technical qualifications of an architect engineer or a nuclear steam system supplier, as such, and that, insofar as the contention creates separate issues outside the context of the subject of quality assurance, it is beyond the scope of this proceeding. The Staff urges that the Board overrule the Applicant's objection on the grounds that the Atomic Energy Act and the Commission's Regulations provide for an assessment of the technical qualifications of the Applicant and, insofar as the Applicant must rely in part on the expertise of its architect engineers or their vendors, or both, the question of technical qualifications remains an issue.

The Board overrules Applicant's objection in this regard for the reasons that, as indicated by the Staff's pleading, the Applicant is under a statutory obligation to prove that it and its agents are technically qualified to construct the proposed plant and to operate the same in accordance with the requirements of Section 182 of the Atomic Energy Act of 1954 and 10 CFR Part 50 of the Commission's Regulations. To the extent that Applicant is required to rely upon its contractors and the contractors' employees, the matter of technical qualifications and the quality assurance and quality control program warranted by the latter become a part of the Applicant's burden to comply with the requirements of the statute and the regulations.

Applicant objects to the admission of Commonwealth's Contention 11 which is directed to the assertion that the Regulatory Staff of the Commission has failed to demonstrate that its inspection practices are adequate to satisfactorily monitor the quality assurance program of nuclear power plant manufacturers. Applicant contends that this contention constitutes a generic challenge to the entire NRC Nuclear Regulatory Program dealing with inspection, and is not specific as to Pilgrim Unit 2. The Staff urges that the Applicant's objection be overruled on the grounds that the contention, read as a whole, imposes the limitation that the evidence must relate to Staff practices with respect to Pilgrim 2 manufacturers. The Board agrees with the Staff position that the contention, fairly construed, is related to the Staff's inspection practices which will be followed with regard to the proposed Pilgrim 2 plant; and the contention will be so limited during the introduction of evidence.

Applicant objects to the admission of Commonwealth Contention 13, which deals with the problem of the research and development program required by 10 CFR Section 50.35(a)(3), arguing that the contention is based upon an ACRS letter referring to generically unresolved problems, but not dealing with specific questions associated with a particular plant; therefore, Applicant contends that this contention does not have the required specificity to give rise to a triable issue. The Staff agrees with the Applicant in this regard and asserts that the Board's action, in its Memorandum and Order of February 18, deleting the original language of the contention referring to pressure vessel failure, caused the objectionable lack of specificity.

The Board wishes to note that, as in other regards, the initial burden rests on the Applicant to demonstrate compliance with the Commission's Regulations, in this case 10 CFR Section 50.35(a)(3). Upon *prima facie* demonstration of compliance, the burden would then shift to the Intervenor to demonstrate with specificity wherein the Applicant's proposals do not comply with the requirements of the regulations regarding the safety program and the research and development carried out therefor. The Board observes, first, that it omitted the reference to the pressure vessel failure language in the Commonwealth's original contention for the reasons pointed out in the Staff's original comments of November 22, 1974; namely, that the Commission's decision in the *Indian Point Case* [*Consolidated Edison Company* (Indian Point Nuclear Generating Station, Unit 2) Memorandum and Order, October 26, 1972, 5 AEC 20] precluded the admission of any such reference to the possibility of pressure vessel failure lacking a showing of "special circumstances." However, the Board was of the opinion, and continues of the opinion that the issue as presently stated, if generally applied to the proposed Pilgrim 2 Plant, is appropriate and viable as an issue in the evidentiary hearing; i.e., the nature of the research required to solve outstanding problems should be identified initially through the process of discovery, and ultimately through the process of evidentiary hearing, and the program looking toward anticipated accomplishment of the resolution of such

problems should be the subject of testimony and evidence. It may be, upon further consideration, that the Board should have modified the contention to have it read "any safety features" rather than as presently stated, "all safety features." Nevertheless, the Board is of the opinion that the contention, as it relates to Pilgrim 2, should be retained and that the Commonwealth, and such other intervenors who have a similar contention, will be required to identify specifically the research and development which it is contended is necessary for compliance by Pilgrim Unit 2, and which has not yet been accomplished or has not been covered in the PSAR. Accordingly, and with this clarification, Applicant's objection will be overruled.

OBJECTIONS TO MASSACHUSETTS WILDLIFE FEDERATION (MWF) CONTENTIONS

Applicant objects to the admission of MWF Contention 5 which deals with the assertion that Applicant's alleged failure to conduct an adequate monitoring program in Pilgrim Unit 1 demonstrates that it lacks the technical qualifications to design and construct Unit 2. The Applicant asserts that the contention is argumentative and subjective, and fails to relate its assumed position to any showing of failure to comply with Commission Regulations or any other standard. The Staff urges that the Applicant's objection be overruled on the grounds that the environmental and radiological monitoring programs are necessary to insure the avoidance of undue hazards and environmental degradation; and that the past performance of the licensee in the conduct of a monitoring program has a bearing on its technical qualifications to design and construct another plant.

The Board will overrule the Applicant's objections to the MWF contention. It is clear that there is a direct relationship between Unit 1 and the proposed Pilgrim Unit 2; i.e., similar types of programs regarding quality assurance and environmental measurements will be carried on collectively at the same site. The operational monitoring data of existing Unit 1 will constitute, in large part, the preoperational data base for proposed Unit 2; therefore, it would be reasonable to examine the past performance of the same licensee in the pre-operational and operational programs undertaken for the already constructed Unit 1 to determine whether or not the Applicant is, in fact, qualified to carry out its proposals for the proposed Unit 2.[1] The Board is of the opinion that a

[1] Cf. *Consumers Power Company* (Midland Plant, Units 1 and 2) Commission Memorandum and Order of January 21, 1974, RAI-74-1, 7, 9-10. Commission Memorandum and Order of July 16, 1974, wherein the Commission apparently recognizes the importance of a record of past performance in stating its "... concern with the licensee's 'overall performance, now and in the future, in the quality assurance area.' " RAI 74-7,4 at page 5.

demonstration of the Applicant's performance with regard to environmental and radiological monitoring programs at the Pilgrim Unit 1 is relevant to the resolution of the issues presented in the current proceeding, as set forth in the Commission's Notice of Hearing herein.

APPLICANT'S OBJECTION TO FORD CONTENTIONS

Applicant objects to the admission of Ford Contentions B and C, dealing with his assertions that Applicant's architect engineering firm and its nuclear steam supplier systems manufacturer assertedly lack the managerial and technical competence to assist in the construction and operation of the plant in a manner consistent with the protection of the public health and safety. The Staff responded to Applicant's objection, asserting that its position here is the same as that taken with respect to Commonwealth Contention 10, and that, for the same reason, the objection should be overruled.

The Board is in agreement with the Staff, and the views stated above with respect to Applicant's objection to Commonwealth Contention 10 will pertain in this regard. Accordingly, and with the foregoing explanation, Applicant's objections to Ford Contentions B and C are overruled.

The Applicant also objects to the admission of Ford Contention L dealing with the research and development programs required under 10 CFR 50.35(a)(3). As pointed out in the Staff's response, the Applicant's objection to this contention is identical with its objection relating to Commonwealth Contention 13. The Board's views set forth above in connection with Commonwealth Contention 13 are likewise applicable here and, with that clarification, the Applicant's objections are overruled.

APPLICANT'S OBJECTION TO CLEETON CONTENTIONS

Applicant objects to Cleeton Contention E dealing with routine releases of radioactive materials caused by the operation of Pilgrim Unit 2, contending that this contention presents a safety issue which is a challenge to the Commission's Regulations governing permitted releases. The Staff response differs with this interpretation by the Applicant, stating that it assumes that if the contention were read as attacking the "as low as practicable" regulations (10 CFR 20.1(c) and 50.34a), it could be dismissed as not containing a showing of "special circumstances" under 10 CFR 2.758. However, the Staff states that it assumes that the contention was admitted by the Board not as a challenge to the Commission's Regulations, but rather as raising the environmental issues of the impact of routine releases; and, as such, there would be no proper objection to this contention.

The Board is in agreement with the aforementioned construction by the Staff of its intention. The admission of this contention was not intended to raise

any generic problems, but, rather, to permit the Cleetons to demonstrate, if they could, the specific environmental impact, if any, on the health and safety of Intervenor's family by routine releases of radioactive materials caused by the operation of Pilgrim Unit 2. Accordingly, Applicant's objection is overruled.

Applicant further objects to the admission of Cleeton Contention K dealing with the availability of long term waste disposal and storage facilities for Pilgrim 2, and the alleged consequent radiological and environmental impact, as well as the effects thereof in the cost-benefit balance required for consideration in the proposed construction and operation in Pilgrim 2. Applicant objects on the ground that it asserts that the language of the contention as written is "unintelligible," and that the contention is the same as that already rejected in Commonwealth Contention 15. The Staff rejects the Applicant's arguments and points out that the objection to language in this regard is "frivolous," and that, as to the second objection, the Contention K now before the Board is not the same as the earlier, different version which was similar to Commonwealth Contention 15.

The Board will overrule the Applicant's objections in this regard, it being of the opinion that the contention, even as presently worded, presents an acceptable issue in the cost-benefit balancing area which will be subject to proof by the parties in the evidentiary hearing.[2]

Dr. A. Dixon Callihan and Dr. Richard F. Cole, Members of the Board, join in this Memorandum and Order.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Esq., Chairman

Dated at Bethesda, Maryland
this 2nd day of April 1975.

[2] The Board notes, in this regard, that the Cleetons have filed a "Motion to Reconsider, Amend and Modify Order" directed to the Board's Order of February 18 with respect to certain of the Cleetons' contentions rejected by the Board, in which reference is also made to Contention K. This motion was filed under date of March 14, 1975. The Cleetons motion will be dealt with in a separate order, but it is to be noted that under Section 2.715a(d) of the Commission's Regulations, objections to a Board order specifying the contentions to be admitted in the proceeding must be filed within five (5) days of the service of this Order. The problem of lateness of this motion will be dealt with in the aforesaid separate order.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-18

ATOMIC SAFETY AND LICENSING BOARD

Samuel W. Jensch, Chairman
R. B. Briggs, Member
Dr. Franklin C. Daiber, Member

In the Matter of

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

(Indian Point Nuclear Generating Unit 3)

Docket No. 50-286

April 8, 1975

Licensing Board, pursuant to 10 CFR §50.57(c), grants applicant's uncontested motion for a less-than-full power operating license effective through June 30, 1975, with stated conditions.

ORDER AUTHORIZING ISSUANCE OF LIMITED OPERATING LICENSE

On July 24, 1974, Consolidated Edison Company of New York, Inc. (Applicant) served a Motion for Fuel-Loading, Subcritical and Low-Power Testing and Limited Operating License. Thereafter, objections to said motion were filed by Intervenors Hudson River Fishermen's Association, Save Our Stripers, and the Attorney General of the State of New York, and by the Regulatory Staff. Recently, all objections to the motion have been withdrawn.

On March 14, 1975, Applicant advised this Atomic Safety and Licensing Board that it desired the Board to act upon said motion and to grant the relief requested effective through June 30, 1975.

Applicant's original motion was accompanied by affidavits detailing the radiological and environmental effects that reasonably can be anticipated if the motion is granted. With its letter of March 14, 1975, Applicant submitted supplemental affidavits updating the earlier information.

In a Stipulation among the parties dated January 13, 1975, a duplicate original of which has been submitted to the Board, all requests for a hearing in this proceeding were withdrawn. In light of the Stipulation, and the withdrawal of previous objections to Applicant's motion, it appears that there are no matters in controversy with respect to said motion and that the Board is

authorized by the last sentence of Section 50.57(c) of the Commission's regulations forthwith to issue an order granting the motion.

WHEREFORE, IT IS ORDERED, in accordance with the Atomic Energy Act, as amended, and Section 50.57(c) of the regulations of the Nuclear Regulatory Commission,[1] that the Director of Nuclear Reactor Regulation, after determining that the Indian Point Nuclear Generating Unit No. 3 has been completed in accordance with the application and the regulations of the Commission, is hereby authorized to make appropriate findings on the matters specified in Section 50.57(a), to make appropriate findings for the protection of the environment pursuant to Appendix D to 10 CFR Part 50, and to issue a license for the requested operation for a period of time until modified by subsequent order of the Director or the Commission and which license shall contain the condition set out in paragraph 2 of the Stipulation among the parties dated January 13, 1975, which condition is as follows:

2. Hudson River Fishermen's Association, Save Our Stripers, the Atomic Energy Council of the State of New York, the Attorney General of the State of New York, and Applicant agree that the Director of Regulation[2] may issue to Applicant or its successor in interest an operating license for a term of 40 years for operation of the Plant at steady-state power levels not to exceed 3,025 megawatts thermal (rated power), provided that such license and any other operating license that may be issued earlier (for such purposes as fuel-loading, testing and limited power operation) shall contain the following condition:

Operation of Indian Point Unit No. 3 (the Plant) with the once-through cooling system will be permitted during an interim period, the termination date for which will be September 15, 1980 (the September 15 date). Thereafter, except as hereinafter provided or as ordered by the Atomic Energy Commission, the Plant shall be operated with an approved closed-cycle cooling system. Such interim operation is subject to the following conditions, none of which shall be interpreted to limit or to affect in any way such other conditions as are imposed by the Atomic Energy Commission or any other governmental body (including, but not limited to, the State of New York) in accord with applicable law:

(a) Interim operation shall only be permitted to the extent that the requirements of this license (including such technical specifications as may be imposed by the Director of Regulation) to protect the aquatic biota of the Hudson River from any significant adverse impacts are satisfied; any

[1] The Nuclear Regulatory Commission is the nuclear power licensing and regulatory organization successor to the Atomic Energy Commission by virtue of legislation enacted by the Congress by Public Law 93-438.

[2] The Director of Regulation, as used in this Stipulation, is now designated the Director of Nuclear Reactor Regulation. Also, references to the Atomic Energy Commission now refer to Nuclear Regulatory Commission.

necessary mitigating measure shall be promptly taken; such measures to include any authorized remedy deemed to be appropriate by the Atomic Energy Commission, including an acceleration of the September 15 date to an earlier date which is deemed reasonable and warranted by the circumstances.

(b) The September 15 date is subject to acceleration or extension depending upon whether the Licensee, acting with due diligence, obtains all governmental approvals required to proceed with the construction of the closed-cycle cooling system by the end of the twelfth month following submission of the evaluation required by subparagraph (g) (the twelve-month deadline). In the event all such government approvals are obtained a month or more prior to the twelve-month deadline, then the September 15 date shall be accelerated accordingly. In the event the Licensee has acted with due diligence in seeking all such governmental approvals, but has not obtained such approvals by the twelve-month deadline, then the September 15 date shall be extended accordingly. If this license is issued before May 1, 1975, the twelve-month deadline shall be June 1, 1976.

(c) If the Licensee believes that the empirical data collected during this interim operation justify an extension of the interim operation period, or other relief, it may make an application to the Atomic Energy Commission. The filing of such application in and of itself shall not warrant an extension of the interim operation period.

(d) After the commencement of construction of a closed-cycle cooling system, a request for an extension of the interim operation period will be considered by the Atomic Energy Commission on the basis of a showing of good cause by the Licensee which also includes a showing that the aquatic biota of the Hudson River will continue to be protected from any significant adverse impacts as a result of operation of the Plant during the period for which an extension is sought. The filing of such application in and of itself shall not warrant an extension of the interim operation period.

(e) The September 15 date is subject to extension if the empirical data referred to in subparagraph (c) are insufficient solely because the Plant has not operated at least 40% of rated power for 45 or more full days (8:00 a.m. to 7:59 a.m.) during the period from May 15 to July 31 in each calendar year, commencing January 1, 1975. The September 15 date will be extended one year for each calendar year in which such operation is not achieved. However, no such extension shall be granted after the Plant has achieved such operation in two calendar years, and no more than two such extensions shall be granted. This subparagraph shall not bar an application for an extension under subparagraph (c) because of lack of operation. As long as an extension of the September 15 date is possible pursuant to this subparagraph, whenever the Plant operates at less than 20% of rated power for

more than 12 consecutive hours during the May 15 to July 31 period, no more than three circulating water pumps shall be used.

(f) In addition to the reporting requirements otherwise imposed by this license, the Licensee is directed to file with the Commission and serve on the parties reports of its analysis of data collected during interim operation which bear on the environmental effects of once-through cooling on the aquatic biota of the Hudson River. Such reports shall be made publicly available. The first such report shall be made as soon as is feasible after the end of the 1975 striped bass spawning season but no later than July 31, 1976, and thereafter as significant new data become available.

(g) Evaluation of the economic and environmental impact of alternative closed-cycle cooling systems shall be made by the Licensee in order to determine a preferred system for installation. This evaluation shall be submitted to the Atomic Energy Commission by one month following the receipt of the full-term, full-power operating license, for review and approval prior to construction.

(h) The September 15 date assumes that the installation of a closed-cycle cooling system for the plant will require the relocation of the natural gas pipeline owned by Algonquin Gas Pipeline Company. If the final determination as to the location of the closed-cycle cooling system does not require the relocation of the pipeline, the date for the termination of the interim period of operation with the once-through cooling system will be May 1, 1980, and all dates in this condition shall be deemed changed to reflect those circumstances by substituting "May 1, 1980 (the May 1 date)" for "September 15, 1980 (the September 15 date)" and "the May 1 date" for "the September 15 date" throughout this condition and subparagraph (j)(1) of this condition shall be ineffective.

(i) No acceleration of the September 15 date shall be made pursuant to subparagraph (b) or (h) to the extent that such acceleration would result in the simultaneous excavation or outage for the construction of closed-cycle cooling systems for both Indian Point Unit Nos. 2 and 3.

(j) In construing and applying this condition, the following definitions shall govern:

(1) "governmental approvals" shall include, among others, approval by the Federal Power Commission of a certificate of public convenience and necessity, or amendment thereto, authorizing relocation of the natural gas pipeline owned by Algonquin Gas Pipeline Company and crossing the Plant site in order to permit excavation for a cooling tower adjacent to the Plant;

(2) "Licensee" shall include Applicant or any successor to its interest in the license to operate the Plant or any joint holder of the license to operate the plant.

This Order is issued by the unanimous approval of the Atomic Safety and Licensing Board.

ATOMIC SAFETY AND
LICENSING BOARD

By Samuel W. Jensch, Chairman.

Issued: April 8, 1975
Bethesda, Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-19

ATOMIC SAFETY AND LICENSING BOARD

F. J. Coufal, Chairman
R. S. Decker, Member
R. L. Holton, Member

In the Matter of

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

(Montague Nuclear Power Station, Units 1 and 2)

Docket Nos. 50-496
50-497

April 23, 1975

Upon motions requesting that discussions between the staff and applicant concerning issues raised by intervenors be held near reactor site, or alternatively that verbatim transcripts be provided, Licensing Board finds that (1) such discussions are not part of the hearing process and are therefore not governed by rules applicable to hearings, and (2) even if they were, the staff has authority to confer privately with any party (10 CFR §2.102(a)).

Motions overruled.

LICENSING BOARD: SCOPE OF REVIEW

A Licensing Board has supervisory authority only over staff actions that are part of the hearing process. See 10 CFR §2.104 and 10 CFR §2.718.

RULES OF PRACTICE: STAFF AUTHORITY

Staff authority to confer privately with any party applies in contested as well as uncontested cases. See 10 CFR §2.102(a).

ORDER

By letter dated January 13, 1975, the Commonwealth of Massachusetts requested that discussions between the Staff and Applicant regarding issues raised by the Commonwealth in its petition to intervene be held in Massachusetts or that verbatim transcripts of the meetings or detailed summaries be

provided. Franklin County supported the Commonwealth's request in a letter dated January 15, 1975, and on January 20, 1975, the State of New Hampshire moved for an order requiring Staff and Applicant either to hold meetings in New England, pay the expenses for Intervenors' counsel to travel, or provide a verbatim transcript of the meetings held in the Washington area. On January 31, 1975, Turners Falls Airport, Inc. and Pioneer Aviation Corporation joined in the request of the Commonwealth and the State. The Board then asked for memoranda of law which have been provided, and the Board has considered each of them.

Under the Commission's regulatory scheme, the Staff is given the duty of reviewing applications for licenses (Section 2.102). This review results in at least two important products, the Safety Evaluation Report and the Draft Environmental Statement. The regulations do not give the Licensing Board a part in this review or in the preparation of the resulting reports. The Commission has delegated to the Licensing Boards power and duties with respect only to the hearing process (2.104 and 2.718). The Staff's review and reporting function is largely completed in a setting outside the hearing process and therefore without the purview of the Licensing Board. The fact that the two areas of activity may proceed, for a time, concurrently, does not extend to the Board any supervisory authority over that part of the process that has been entrusted to the Staff. If the parties here argue that such a trust is unwise or that the Staff should perform it in a different way, then that argument is an attack on the regulations which is beyond the cognizance of this Board.

Moreover, the Staff by specific regulation has the authority to confer privately with any party (Section 2.102(a)). New Hampshire argues that this regulation does not apply to contested cases, but the Board is unable to so read the section.

The distinction between the review process and the hearing process obviates the argument of Turners Falls Airport and Pioneer Aviation concerning the siting of hearings. We concur that hearings should be held where the regulations provide but conclude that the Staff conferences considered here are not hearings within the meaning of that regulation.

Therefore, it is ORDERED:

That the motions referred to in the opening paragraph of this order are overruled.

THE ATOMIC SAFETY AND
LICENSING BOARD

Frederic J. Coufal, Chairman

Dated at Bethesda, Maryland,
this 23rd day of April, 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-20

ATOMIC SAFETY AND LICENSING BOARD

Marshall E. Miller, Chairman
John M. Frysiak, Member
Sidney G. Kingsley, Member

In the Matter of
UNION ELECTRIC COMPANY
(Callaway Plant, Units 1 and 2)

Docket Nos. STN 50-483A
50-486A
April 24, 1975

Upon petition for leave to intervene in antitrust aspects of construction permit proceeding (filed by participants in health and safety-environmental aspects of such proceeding), Licensing Board finds that (1) untimely filing is not supported by good cause shown for the delay, and (2) petitioners fail to allege facts implicating applicant in a situation inconsistent with the antitrust laws.

Petition for leave to intervene denied.

RULES OF PRACTICE: STANDING TO INTERVENE

Standing to intervene under Section 105c of the Atomic Energy Act is not limited to persons suffering competitive injury who are entitled to maintain private treble damage actions under Section 4 of the Clayton Act for injuries resulting from violations of the antitrust laws.

RULES OF PRACTICE: STANDING TO INTERVENE

The scope of NRC prelicensing antitrust review under Section 105c of the Atomic Energy Act is not limited to practices which violate the antitrust laws but also includes incipient trade restraints falling within the purview of Section 5 of the Federal Trade Commission Act. Since a non-competitive impact upon consumers may sustain a Section 5 violation (see *FTC* v. *Sperry & Hutchinson Company*, 505 U.S. 233 (1972), a petitioner claiming such injury may have standing under Section 105c.

RULES OF PRACTICE: STANDING TO INTERVENE

Petitioners representing consumers of electricity supplied by the applicant have standing to participate in NRC prelicensing antitrust proceeding under

Section 105c of the Atomic Energy Act, if they otherwise satisfy Commission intervention requirements (10 CFR §2.714). See: *United States* v. *SCRAP*, 412 U.S. 669 (1973); *Office of Communication of United Church of Christ* v. *F.C.C.* 359 F. 2d 994 (D.C. Cir. 1966).

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

10 CFR §2.714(a) requires that petitions for intervention be accompanied by supporting affidavits identifying the specific aspects of the subject matter of the proceeding as to which petitioner wishes to intervene, and setting forth with particularity the basis for petitioner's contentions with regard to each aspect for which intervention is desired.

ATOMIC ENERGY ACT: ANTITRUST PROVISION

Under Section 105(a) of the Atomic Energy Act, it is the license applicant's activities that must create or maintain a situation inconsistent with the antitrust laws; the activities of others who, under some kind of direct or indirect contractual relationship may be furnishing equipment, materials or services for the licensed facility, would not fall within the ambit of Section 105(a) unless the license applicant is culpably involved in such activities.

MEMORANDUM AND ORDER

Union Electric Company has applied for the issuance of a construction permit for two nuclear power reactors to be located in Callaway County, Missouri. A joint petition for leave to intervene in the antitrust aspects of the application has been filed by the Coalition for the Environment–St. Louis Region and the Utility Consumers Council of Missouri purporting to be on behalf of themselves and, in the case of the Coalition, on behalf of its members, affiliated organizations, and other organizations and individuals authorizing the Coalition to intervene on their behalf. We deny the joint petition for leave to intervene.

On October 21, 1974, the Atomic Energy Commission, the statutory predecessor of the Nuclear Regulatory Commission, published in the *Federal Register* (39 *F.R.* 37414) a notice of the receipt of a letter of advice from the Attorney General of the United States pursuant to Section 105c of the Atomic Energy Act of 1954 (42 USC 2135(c)). That letter of advice informed the Commission that the applicant had agreed to seek amendment of unduly restrictive features in its agreements with wholesale customers and had in one other respect indicated willingness to make appropriate arrangements, and that the Attorney General accordingly, from the information available to him at that

time, had concluded that no antitrust hearing by the Atomic Energy Commission would be required with respect to the application.

The notice of receipt of the letter of advice from the Attorney General, published on October 21, 1974, prescribed that in accordance with the Commission's regulations, 10 CFR 2.714, petitions for leave to intervene and requests for a hearing on antitrust considerations were to be filed by November 20, 1974. No timely petition was filed by either of the joint intervenors in response to that notice.

On October 17, 1974, prior to the publication on October 21, 1974, of the notice of receipt of the letter of advice from the Attorney General, these joint petitioners had filed a petition for leave to intervene in the radiological health and safety and environmental aspects of the proceeding. That petition incorporated thirty contentions relating to radiological health and safety and environmental considerations. It also included one contention which alleged an unlawful combination by the applicant and certain other utilities in restraint of trade, although a notice of hearing dated August 21, 1974, and published in the *Federal Register* (39 *F.R.* 31690, August 30, 1974) had made it clear that antitrust issues were not to be among the subjects of that hearing.

Following a special prehearing conference, the atomic safety and licensing board assigned to the aspects of the application concerning radiological health and safety and environmental considerations issued an order on February 19, 1975. The order admitted as issues in the proceeding certain safety and environmental issues and recited that all other contentions previously advanced had been withdrawn. It followed the filing of a written stipulation by which the joint intervenors withdrew their antitrust contention.

On October 21, 1974, the Coalition addressed a letter to the "Chief, Office of Antitrust and Indemnity, Director of Licensing," enclosing "for your information" a copy of the joint petition which had previously been filed and calling attention to the contention relating to antitrust aspects. On November 18, 1974, on behalf of both joint petitioners, a letter was sent to the Commission, "Attention: Office of Anti-trust and Indemnity, Directorate of Planning," mentioning the letter of October 21, 1974, and the letter of the Department of Justice and adding:

> We therefore request that you consider the antitrust aspects of the proposed plant in light of our contention No. 31 [the anti-trust contention]; and that this matter be set down for an anti-trust hearing on our contention.

On December 9, 1974, a written response by staff counsel informed the joint petitioners that under the Commission's regulations antitrust reviews of applications are dealt with separately from radiological safety and environmental aspects; that the procedures specified in the Commission's Rules of Practice and the notice of October 21, 1974, had not been followed by the joint petitioners; that the letters of October 21 and November 18 had not been addressed to the Commission's Secretary as the regulations prescribe (10 CFR 2.701) and had

consequently been considered to be merely a transmittal of information; and that if the joint petitioners should, in view of the Justice Department's letter, still feel that an antitrust hearing is warranted, they should submit a petition complying with Sections 2.701 and 2.714 of the Commission's Rules of Practice. Staff counsel added that while the prescribed time for filing a petition for intervention with respect to the antitrust aspects had expired, the staff would not oppose such a petition on the ground of lack of timeliness.

There was no response to this letter during a period of more than two months. On February 12, 1975, staff counsel telephoned counsel for the joint petitioners and asserted that since the joint petitioners had failed to file a proper petition to intervene within a reasonable time after December 9, 1974, the staff would address any response to a new petition on the basis of all requirements, including timeliness. That telephone call was confirmed by a letter dated February 12, 1975.

On February 24, 1975, more than three months after November 20, 1974, the last date on which it might properly be filed, the joint petitioners filed a petition requesting that an antitrust hearing be held.[1]

A threshold question for determination is whether the joint petitioners have standing to intervene under Section 105c of the Atomic Energy Act. The answer of the NRC Staff contends in part that inasmuch as the joint petitioners and their members are purchasers of retail electricity from the applicant, but are not actual or potential competitors, they do not "have a competitive or commercial interest to protect in this proceeding, that is arguably within the 'zone of interest' or 'target area' to be protected by Section 105c of the Act or under the antitrust laws."[2] The Staff cites in support of this proposition the limitation of treble damage actions under Section 4 of the Clayton Act to a person injured "in his business or property" by anything forbidden in the antitrust laws.[3] Some judicial definitions of standing under the Clayton Act are then equated with Section 105c, to limit the latter's application to actual or potential competitors. We cannot agree with such a narrow interpretation of standing with respect to prelicensing antitrust review.

In the first place, Section 105c is not limited to persons entitled to maintain private treble damage suits under Section 4 of the Clayton Act, for injuries resulting from violations of the antitrust laws. Section 105c was intended to cover situations inconsistent with the specified antitrust laws, "or the policies clearly underlying these laws."[4] Among the relevant antitrust laws specified in

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[1] Both the applicant and the staff have characterized the petition as being undated and unsigned. But the original, as filed with the Secretary, is dated and signed. The misunderstanding appears to have arisen because unconformed copies were served on them.

[2] Answer of the NRC Staff in Opposition to the Petition for Intervention etc., p. 9.

[3] 15 U.S.C. 15.

[4] H. R. Rep. No. 91-1470, reprinted in U. S. Code Cong. Serv. 4994 (1970).

Section 105a of the Atomic Energy Act is Section 5 of the Federal Trade Commission Act, which declares unlawful "unfair methods of competition in commerce, and unfair or deceptive acts or practices in commerce."[5] The reach of Section 5 of the FTC act includes all violations of the Sherman or Clayton Acts, as well as other incipient trade restraints which are not outright violations of the antitrust laws.[6] The Supreme Court held in *Federal Trade Commission* v. *Sperry & Hutchinson Company*[7] that there may be an anticompetitive impact which is not a violation of the antitrust laws but which violates Section 5, and that there may also be an impact upon consumers, without regard to competition, which will sustain a Section 5 violation. As the Court stated at 405 U.S. 244:

> Thenceforth, unfair competitive practices were not limited to those likely to have anticompetitive consequences after the manner of the antitrust laws; nor were unfair practices in commerce confined to purely competitive behavior.

The Congressional intent to include unfair competitive practices under Section 5 of the FTC act within the scope of NRC prelicensing antitrust review is shown by the report of the Joint Committee on Atomic Energy, which stated:

> It is important to note that the antitrust laws within the ambit of subsection 105c of the bill are all the laws specified in subsection 105a. These include the statutory provisions pertaining to the Federal Trade Commission, which normally are not identified as antitrust law. Accordingly, the focus for the Commission's finding will, for example, include consideration of the admonition in Section 5 of the Federal Trade Commission Act, as amended, that "Unfair methods of competition in commerce, and unfair and deceptive acts in commerce, are declared unlawful."[8]

It should also be noted that in recent years the Supreme Court has very substantially liberalized the doctrine of standing, with regard to both statutory and nonstatutory judicial review. Professor Kenneth E. Scott, in an excellent study which analyzes many of the Supreme Court cases cited by the Staff, concludes that "the trend toward easing standing requirements is unmistakable and has met with general approval."[9] This trend culminated in the *SCRAP*

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[5] 15 U.S.C. 45(a)(1).

[6] *Atlantic Refining Co.* v. *FTC*, 381 U.S. 357 (1965); *FTC* v. *Brown Shoe Co.*, 384 U.S. 316 (1966); *FTC* v. *Motion Picture Advertising Service Co., Inc.*, 344 U.S. 392, 394-5 (1953).

[7] 405 U.S. 233, 246, 31 L. ed. 2d 170, 180, 92 S Ct 898 (1972).

[8] H. R. Rep. No. 91-1470, reprinted in U. S. Code Cong. Serv. 4994-5 (1970).

[9] Scott, *Standing in the Supreme Court—A Functional Analysis*, 86 Harv. L. Rev. 645, 646 (1973). See also Davis, *The Liberalized Law of Standing*, 37 U. Chi. L. Rev. 450 (1970); Jaffe, *Standing Again*, 84 Harv. L. Rev. 633 (1971).

decision, wherein 5 law students were held to have standing to enjoin the enforcement of an Interstate Commerce Commission order allowing railroads to collect a 2.5% surcharge, for lack of an environmental impact statement required by NEPA. The students contended that their members used forest, streams and other natural resources, which use was disturbed by the adverse environmental impact caused by the nonuse of recyclable goods brought about by a rate increase on those commodities.[10]

Finally, consumer intervention in administrative proceedings was thoroughly considered in the leading *United Church of Christ* decision by Judge (now Chief Justice) Burger.[11] The question was whether representatives of the listening public had standing to intervene in a television license renewal proceeding before the Federal Communications Commission. Because all parties considered that the same standards applied to determine standing before the Commission and standing to appeal a Commission order to the courts, the opinion used cases dealing with standing in the two tribunals interchangeably. The Commission had denied a petition to intervene on the grounds that standing was predicated upon the invasion of a legally protected interest, and that the petitioners could assert no greater interest or claim of injury than members of the general public. In reversing, the U. S. circuit court held that "There is nothing unusual or novel in granting the consuming public standing to challenge administrative actions," citing such cases as *U. S.* v. *Public Utilities Commission*, 151 F.2d 609 (CA DC, 1945), where a consumer of electricity was held to be affected by the rates charged and hence could appeal an order setting rates.

Accordingly, it must be held that the joint petitioners, representing consumers of electricity supplied by the applicant, have sufficient standing to petition for intervention in the instant proceedings, if they otherwise fulfill all of the requirements of the Commission's regulations, 10 CFR 2.714.

In view of the fact that the joint petitioners had filed on October 17, 1974, a petition for leave to intervene which included a contention relating to antitrust considerations, we might perhaps in other circumstances consider that the belated second petition might be accepted under the authority granted to us by Section 2.711 to grant extensions of time for good cause shown. That would especially be the case if the petitioners had failed to evaluate the situation because they had not been represented by legal counsel, and if they had filed the second petition expeditiously after the circumstances had been called to their attention by staff counsel. But these petitioners were represented by legal counsel; they failed to take advantage of the oral and written reminders by staff counsel; and they allowed more than two months to pass after those reminders before they filed a petition presenting the antitrust contention. Even in the

[10] *United States* v. *SCRAP*, 412 U.S. 669, 37 L. ed. 2d 254 (1973).

[11] *Office of Communication of United Church of Christ* v. *F.C.C.*, 359 F.2d 994, 1002 (CA DC, 1966).

absence of any obvious prejudice to the applicant by this series of defaults on their part, we believe that due regard for the orderly administration of justice requires under these circumstances that the limits prescribed by our Rules of Practice should be enforced, and that further indulgence to the petitioners for intervention would be misplaced.

Our Rules of Practice (10 CFR 2.714(a)) require that a petition for intervention shall be accompanied by a supporting affidavit identifying the specific aspect or aspects of the subject matter of the proceeding as to which the applicant for intervention wishes to intervene, and setting forth with particularity the basis for his contentions with regard to each aspect as to which he desires to intervene.

The application in this proceeding is one of four contemporaneously filed applications which comprise the so-called Standardized Nuclear Unit Power Plant System. These various applications will each be dealt with pursuant to the so-called "duplicate plant approach" under the Commission's regulations (10 CFR 50 App. N), permitting simultaneous review of the safety aspects of a number of similar plants. The joint petition now before us alleges in substance that the purchase by the applicant and other electric utilities of a "single-package nuclear power plant from a single supplier" constitutes an unlawful combination in restraint of trade. In fact, the various utilities are not purchasing a single-package nuclear power plant from a single supplier but will purchase each of certain major components from a single vendor. In discussing the scope of the concept of creating or maintaining a situation inconsistent with the antitrust laws under Section 105(a) of the Atomic Energy Act, the Joint Committee on Atomic Energy has declared:

> The standard pertains to the activities of the license applicant. The activities of others, such as designers, fabricators, manufacturers, or suppliers of materials or services, who, under some kind of direct or indirect contractual relationship may be furnishing equipment, materials or services for the licensed facility would not constitute "activities under the license" *unless the license applicant is culpably involved in activities of others that fall within the ambit of the standard.*[12] (Emphasis supplied.)

Neither the joint petition, the affidavit submitted in support of it, nor the memorandum of the joint petitioners, alleges factually any circumstance which is claimed culpably to implicate the applicant in the alleged unlawful activities of the suppliers. We conclude that the petitioners for intervention have failed to comply with the requirements of Section 2.714. The petitioners do not allege facts amounting to any connection between a situation inconsistent with the antitrust laws and the activities to be authorized under the license. They have

[12] S. Rept. No. 1247, 91st Cong., 2d Sess., 31 (1970), U.S. Code Congressional and Administrative News, 91st Cong., 2d Sess. (1970), Vol. 3, p. 5011.

therefore failed to comply with the conditions prescribed in the *Louisiana Power and Light* case[13] for the sufficiency of a petition for intervention.

It is therefore ORDERED that the joint petition for leave to intervene filed by the Coalition for the Environment—St. Louis Region and the Utility Council of Missouri is denied.

THE ATOMIC SAFETY AND LICENSING BOARD
Designated to Rule on Petitions for Intervention

John M. Frysiak, Member

Sidney G. Kingsley, Member

Marshall E. Miller, Chairman

Dated at Bethesda, Maryland,
this 24th day of April, 1975.

[13] Matter of Louisiana Power and Light Company (Waterford Steam Electric Generating Station, Unit 3), CLI-73-25, RAI-73-9, p. 619.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-21

ATOMIC SAFETY AND LICENSING BOARD

J. R. Yore, Chairman
W. H. Jordan, Member
W. E. Martin, Member

In the Matter of

PORTLAND GENERAL ELECTRIC COMPANY

(Pebble Springs Nuclear Plant, Units 1 and 2)

Docket Nos. 50-514
50-515

April 24, 1975

Upon petitions to intervene in construction permit proceeding, Licensing Board (1) denies petition of R. E. Epping for lack of compliance with 10 CFR §2.714, (2) grants petitions of two organizations represented by Lloyd K. Marbet as to contentions relating to need for power and adequacy of the cost-benefit balance, but finds other contentions lack requisite specificity, and (3) denies petition of Mr. Marbet in his own behalf for lack of personal interest.

Petitions to intervene denied and granted accordingly.

RULES OF PRACTICE: STANDING TO INTERVENE

Where a group is challenging the need for power, a showing that certain of its members are customers of the applicant constitutes an economic interest which satisfies the standing requirement.

ORDER OF THE BOARD CONCERNING PETITIONS TO INTERVENE

On December 9, 1974, the Atomic Energy Commission, now the Nuclear Regulatory Commission,[1] published in the *Federal Register* a Notice of Hearing on Application for Construction Permits concerning this proceeding

[1] Pursuant to the Energy Reorganization Act, Public Law 93-438, all the regulatory and licensing functions of the Atomic Energy Commission were transferred to the Nuclear Regulatory Commission.

(39 *F.R.* 42938). In response to this Notice, the State of Oregon moved to participate in this proceeding, by and through its Nuclear and Thermal Energy Council, pursuant to 10 CFR §2.715(c) of the Commission's regulations. In addition, Lloyd K. Marbet timely filed, on his own behalf and on behalf of Forelaws on Board (FOB) and Coalition for Safe Power (CSP) a two-page letter-petition. A timely petition was also filed by R. E. Epping.

The Portland General Electric Company (Applicant) filed objections to the petitions submitted by Lloyd K. Marbet and R. E. Epping and the Commission Staff (Staff) recommended that these Petitioners be granted thirty days to file amended petitions in compliance with the requirements of 10 CFR §2.714. On January 30, 1975, this Atomic Safety and Licensing Board (Board) approved the motion of the State of Oregon, and granted the other Petitioners thirty days within which to file amended petitions and supporting affidavits.

In accordance with the Board's Order, Petitioner Marbet timely filed, under oath, an amended petition. Petitioner Epping did not file an amended petition and did not appear at a subsequent Special Prehearing Conference. Therefore, the Board is denying the petition to intervene submitted by R. E. Epping.

With respect to the submission filed on March 17, 1975, by Mr. Marbet, on his own behalf and on behalf of FOB and CSP (hereafter referred to as Petitioner), Petitioner still failed to set forth his interest, or the interest of the two organizations he sought to represent in this proceeding, as required by 10 CFR §2.714.

In view of the fact that Petitioner is not represented by an attorney, the Board granted him an additional opportunity to verbally clarify the petition, as amended, at the Special Prehearing Conference held in Arlington, Oregon, on March 25, 1975 (Tr. 11-53). As a result of this Conference, the Board granted Petitioner an additional opportunity to file affidavits showing whether any members of FOB or CSP are customers of Applicant and/or make use of the "general area" of the proposed site for recreational or other purposes (Tr. 54). The Applicant and Staff were granted additional time to file written comments on any such submissions.

At the Special Prehearing Conference, the representative of the State of Oregon advised that Mr. Marbet has been a full intervenor in the State proceedings conducted by the Nuclear and Thermal Energy Council of the State of Oregon, participated in those proceedings, and filed proposed findings and conclusions and a brief (Tr. 102). Moreover, the State representative advised that Mr. Marbet "raised issues that the Council felt to be legitimately in the public interest and the Council granted him full intervenor's status and he participated throughout the hearing" (Tr. 51).

Subsequent to the Special Prehearing Conference, affidavits executed by members of CSP and a Mr. Robert E. Cobb, "owner" of FOB were submitted. These affidavits state that at least seven members of CSP, and the "owner" of FOB, are customers of the Applicant. In addition, the affidavits of Mr. Cobb and

of Mr. Winters, and the unnotarized letter from Thelma Lester, all assert the basis for their economic interest. Mr. Winters, in his affidavit, states that he has "spent quite a bit of time in eastern Oregon including the Arlington area".

It is the position of the Applicant that Petitioner, Lloyd K. Marbet, on behalf of the organizations he purports to represent and on his own behalf, has not made the required showing to justify intervention in this proceeding. The Applicant emphasizes that all of those submitting affidavits are residents of Portland, Oregon, and reside at least 150 miles from the proposed facility site. (Based on its own experience, the Board notes that the distance from the Portland Airport to Arlington, Oregon, is approximately 140 miles. Portland is downstream on the Columbia River from Arlington.) Furthermore, the Applicant emphasizes that the fact that certain members of Petitioner may be customers of the Applicant is purely incidental to this proceeding. They are not participating as a group of rate payers asking this Board to give them rate relief or better service, which is within the jurisdiction of the Oregon Public Utility Commissioner. In sum, the Applicant states that Petitioner has asserted only a general interest which is insufficient to support standing in this proceeding.

The Staff supports the Petition. They state that the affidavits, when fairly read with the Petition, all filed without the benefit of counsel, assert a sufficient interest and basis since, if Petitioner's contentions relating to need for power are substantiated, an unneeded or uneconomical plant would impact on the rates to be paid by these members of CSP and the "owner" of FOB who are customers of the Applicant.

The Board concurs in the Staff position. It holds that Petitioner's contentions relating to need for power are valid contentions. Furthermore, the affidavits submitted reflect that members of the two organizations involved are customers of the Applicant. Standing to intervene requires a showing that (1) the entry of an order in the particular proceeding would cause actual injury to the person or group requesting intervention, and (2) such injury is arguably within the scope of interests to be protected by the statutes governing the particular proceeding. *Association of Data Processing Service Organization* v. *Camp*, 397 US 150 (1970); *Barlow* v. *Collins*, 397 US 159 (1970); *Sierra Club* v. *Morton*, 405 US 727 (1972). Petitioner here is challenging the need for power and, since certain of its members are customers of the Applicant, the required economic interest is present. Since need for power is a required issue in individual licensing proceedings (although some authorities consider it a generic issue and not a proper one for individual proceedings) the Board rules that FOB and CSP have demonstrated an interest and have standing to participate in this proceeding.

With respect to that portion of the Petition in which Mr. Marbet seeks to intervene on a personal basis, the Staff notes that, after three opportunities, he has still not adequately set forth his personal interest in this proceeding. The record does not indicate that he is a customer of the Applicant or that he has

made use of the "general area" of the proposed site for recreational or other purposes. However, he is an officer or member of the two organizations in question and is authorized to represent them. The Board therefore rules that Mr. Marbet is authorized to represent FOB and CSP as joint intervenors in this proceeding but not participate on his own behalf.

In the original Petition filed by FOB and CSP, seven contentions were set forth. The Board granted Petitioner an additional thirty days in which to perfect its contentions and also afforded an opportunity at the Special Prehearing Conference for a refinement on the record of such contentions.

It is the position of the Applicant that none of the contentions meet Commission requirements. The Staff holds that contentions 1 and 7 meet the requirements of 10 CFR §2.714(2). These contentions which were discussed by Petitioner at the Special Prehearing Conference are as follows:

1. The need for the reactors to begin with. We do not feel that it has been demonstrated that under the conditions we are being asked to accept that there is a need for this kind of energy to provide our power. We make this ascertion (sic) both in light of the projected needs by the utility, which we question, and also in the availability of alternatives to provide a more sound solution to the problems which we face.

7. The economics of the operation along with the total environmental impact. It has not been proven that nuclear energy will provide a return upon the investment that is required to build and sustain it. Especially in light of any possible adverse effects which might and could appear.

The Board previously noted that need for power is a valid contention and is approving the above contentions 1 and 7 for this proceeding. The Board interprets Intervenor's contention 1 to be a two-part allegation to the effect that: (a) Applicant's projection of future power requirements is erroneous and (b) alternative methods of producing additional power, if it should be needed sometime in the future, have not been adequately evaluated. The Board interprets Intervenor's contention 7 as a challenge to the adequacy of the cost-benefit balance and whether the adverse environmental effects have been adequately factored into the final determination.

The remaining contentions are the following:

2. The safety of the reactors. This includes both the operational safety provided by humans and mechanized safety provided by machines. Enough cannot be said about just one problem in the viability of the Emergency Core Cooling System. The newspapers are full of the problems covered in the operation of nuclear facilities. We question the use of probabilities to provide assurance of reactor safety.

3. The military strategic value of nuclear facilities. This I would believe speaks for itself.

4. The vulnerability of reactors to sabotage throughout the reactor operation and transportation of materials.

5. The effect of released radioactivity under all conditions of release. It is obvious that this still is one of the most controversial areas covered in the operation of nuclear facilities, both normal and accidental.

6. Waste storage and handling. It is still to be resolved as to what is to be the eventual disposition of nuclear wastes. How we can proceed to produce some of the most deadly substances known to man without having some kind of concrete evidence that we will be able to deal with them for their perpetuity is beyond our recognition.

The Applicant opposes all of the above contentions. The Staff contends that they do not meet the specificity requirements of 10 CFR §2.714(a). In reviewing contentions special attention must be given to the pertinent provisions of 10 CFR §2.714(a). This rule states that any petition shall be accompanied by a supporting affidavit identifying the specific aspect or aspects of the subject matter of the proceeding as to which the Petitioner wishes to intervene, and setting forth with particularity the basis for the contentions with regard to each aspect on which there is a desire to intervene. Although Petitioner was afforded additional opportunity to refine its original contentions, no such action was taken. The Board rules that contentions 2-6 are so vague and general in nature that they do not meet the specificity requirements of 10 CFR §2.714(a) and therefore the Board does not approve the petition in this respect.

The Board emphasizes that if subsequent submissions, such as the Final Environmental Statement and the Staff's Safety Evaluation Report, reveal new, significant information, the Intervenor may petition to amend its contentions for good cause.

Discovery is hereby authorized with respect to contentions 1 and 7. Interrogatories should be forwarded by the Parties no later than 10 days after the receipt of this Order. All answers to the interrogatories should be received by the Parties no later than May 31, 1975.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

James R. Yore, Chairman

Dated at: Bethesda, Md.
this 24th day of April 1975

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LPB-75-22

ATOMIC SAFETY AND LICENSING BOARD

D. M. Head, Chairman
K. A. McCollom, Member
E. O. Salo, Member

In the Matter of

PHILADELPHIA ELECTRIC COMPANY, *et al.*

(Peach Bottom Atomic Power Station, Units 2 and 3)

Docket Nos. 50-277
50-278

April 24, 1975

Upon petition to intervene and request for hearing on order modifying operating license (to conform to Final Acceptance Criteria), Licensing Board finds petition defective in that (1) it fails to satisfy the interest requirements of 10 CFR §2.714, and (2) it fails to raise any contentions which are admissible as issues in controversy in connection with the modification order.

Petition for intervention and request for hearing denied.

RULES OF PRACTICE: STANDING TO INTERVENE

Participation in a prior licensing proceeding involving the same facility does not adequately establish petitioners' interest in a modification order issued for such facility; to meet the requirements of 10 CFR §2.714, petitioners must specifically plead how their interest might be affected by the modification order. Failure to so plead will not result in outright rejection of petition where details of petitioners' interest could be supplied within a reasonable time.

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

Contentions challenging Commission regulations (as distinguished from the failure of a facility to comply with such regulations) are impermissible in a licensing proceeding, and thus fail to satisfy the contention requirement of 10 CFR §2.714(b); such challenges are a proper subject for a rulemaking proceeding.

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

In order to raise the issue of pressure vessel failure that issue must be within the scope of issues raised by the modification order and in a license modification proceeding there must be a showing of special circumstances associated with the facility's pressure vessel(s). See *Indian Point 2*, CLI-72-29 (October 26, 1972).

MEMORANDUM AND ORDER

On December 27, 1974, the U. S. Atomic Energy Commission (now the U. S. Nuclear Regulatory Commission [the Commission]) issued an "Order for Modification of License" (modification order) regarding the operating licenses for the Peach Bottom Atomic Power Station, Units 2 and 3 (the facility). The modification order, which was published in the *Federal Register* on January 9, 1975 (40 *F.R.* 1772), imposed restrictions on operation of the facilities, the purpose of which is to assure conformance of the facilities with the final acceptance criteria for emergency core cooling systems (ECCS) for light water nuclear power reactors contained in 10 CFR 50.46 and 10 CFR Part 50, Appendix K.

The modification order provided that the licensee and any other person whose interest might be affected may file a request for a hearing with respect to the order in accordance with the provisions of Section 2.714 of the Commission's Rules of Practice, 10 CFR Part 2. On January 31, 1975, the Commission received a "Petition for Intervention" (the Petition) from the York Committee for Safe Environment, Citizens for a Safe Environment, and Environmental Coalition on Nuclear Power (the Petitioners). By Memorandum and Order dated February 27, 1975, the Commission delegated authority to rule upon this petition and to conduct any hearing in connection therewith to an Atomic Safety and Licensing Board to be designated by the Chairman of the Atomic Safety and Licensing Board Panel. In this regard, the Chairman of the Licensing Board Panel by Order dated March 5, 1975, established an Atomic Safety and Licensing Board (the Board) consisting of Dr. Kenneth A. McCollom and Dr. Ernest O. Salo as technically qualified members and Daniel M. Head as Chairman.

The purpose of this Memorandum and Order is for the Board to rule on above-identified Petition. In fulfilling its responsibilities, the Board will briefly discuss the background of the modification order to place the issues presented by the Petition in context, and will then deal with whether the Petition meets the interest and contentions requirements of Section 2.714, the rule governing intervention in Commission proceedings.

I. BACKGROUND

On December 28, 1973, after an extensive proceeding relating to ECCS performance, the Commission adopted modifications of its Interim Acceptance Criteria for emergency core cooling systems for light water cooled nuclear power reactors.[1] The background of that proceeding and the Commission's analysis of the many factors involved is set out in detail in the opinion of the Commission dated December 28, 1973.[2] In accordance with that opinion, the Commission's regulations in 10 CFR Part 50 were amended on January 4, 1974, to add Section 50.46 establishing the Final Acceptance Criteria[2] and a new Appendix K, establishing required and acceptable features of ECCS evaluation models (39 *F.R.* 1003).

In pertinent part Section 50.46 requires, for all reactors for which an operating license had been issued prior to December 28, 1974, that the licensee submit within a specified time frame an evaluation demonstrating that ECCS performance would conform with the Final Acceptance Criteria.

The evaluation is to be accompanied by proposed changes in Technical Specifications or license amendments as may be necessary to bring reactor operation into conformity with the requirements of the Final Acceptance Criteria. Upon submission of the evaluation, compliance is required with the proposed changes in Technical Specifications or license amendments. Further, the Commission's Director of Regulation reviews the evaluation to determine if it is consistent with the requirements of Section 50.46 and if it is not, the Director of Regulation is authorized to impose further restrictions on reactor operation.

In the instant proceeding, the licensee submitted the required evaluation under Section 50.46 on August 5, 1974, along with proposed changes in the Technical Specifications to limit operation in conformity with requirements of Section 50.46. After review of the evaluation and evaluation models, the Director of Regulation concluded that certain modifications were required since the evaluation models were not in complete conformity with Appendix K. The conclusion was that certain restrictions, in addition to those proposed by the licensee, were necessary to assure that the Final Acceptance Criteria were satisfied. Accordingly, the modification order imposed additional limitations on maximum average linear heat generation rates and required continued conformity with the requirements of the Interim Acceptance Criteria for the facility.

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[1] The Interim Acceptance Criteria for ECCS had been issued June 29, 1971 (36 *F.R.* 12247) and amended December 18, 1971 (36 *F.R.* 24082).

[2] *Rulemaking Hearing—Acceptance Criteria for Emergency Core Cooling Systems for Light-Water-Cooled Nuclear Power Reactors*, CLI-73-39, RAI-73-12, 1085.

Also, the modification order requires that a reevaluation in accordance with an acceptable evaluation model conforming to the provisions of Section 50.46 be submitted by the licensee not later than July 9, 1975, along with proposed Technical Specifications based on such evaluation. The restrictions imposed by the modification order are to be observed by the licensee until such time as the proposed Technical Specifications are approved or modified and issued by the Commission. In addition, the modification order indicates that subsequent notice and opportunity for hearing will be provided in connection with that further action.

It should be noted that the modification order does not change the requirements of the Final Acceptance Criteria nor does it alter the obligation of licensees to operate in conformity with the Final Acceptance Criteria. The modification order has the sole effect of implementing these requirements in individual cases such as the present proceeding.

With the above background, attention can now be focused on the merits of the Petition. The Board will first consider whether the Petition meets the interest requirements of Section 2.714 and then whether it meets the contentions requirements of that Section.

II. THE PETITIONERS' INTEREST

In general, Section 2.714 requires that a petitioner requesting a hearing identify his interest and how his interest may be affected by the proposed action, in this case the action set out in the modification order.[3]

In the instant action, however, Petitioners have not set forth in detail their interest nor how that interest may be affected by the proposed action in the modification order. The Petitioners instead seek to rely upon their prior participation in Commission licensing proceedings. Two of the petitioners, York Committee for Safe Environment and Environmental Coalition on Nuclear Power, were intervenors in the hearing on the operating licenses for the facilities and the Petitioners have also participated in other licensing proceedings.[4]

[3] Section 2.714 on its face does not specifically refer to actions such as the modification order which is issued under 10 CFR 2.204. However, the modification order specifically provides that petitions for intervention filed under it conform to Section 2.714.

[4] In the prior licensing proceeding involving the operating licenses for the facility, the interest relied upon by the Petitioners York Committee for Safe Environment and Environmental Coalition on Nuclear Power was that members of those organizations living near the facility use Conowingo Pond for recreational purposes, and that interest may be affected by thermal pollution. It is not necessary here to list the participation in other Commission licensing proceedings relied upon by the Petitioners. That is set out in detail in footnote 4, pp. 6-7 of the response by the Staff to the Petition.

The Commission's Regulatory Staff (the Staff) and the Applicants both argue, in their responses to the Petition, that participation in a prior licensing proceeding involving the same facility and in other Commission licensing proceedings is not adequate to establish interest, particularly where no attempt is made to establish that the interest relied upon in those other proceedings is an interest that might be affected by the modification order. Both contend that the specific interest of the Petitioners and how that interest might be affected by the modification order must be specifically pleaded because the scope of the other proceedings in which intervention was obtained is broader than the more limited scope of the modification order. The Board concurs with the Applicants and the Staff that the interest of the Petitioners and how that interest might be affected by the modification order must be specifically pleaded in the Petition to meet the requirements of Section 2.714. The Petition, therefore, is defective in this regard. However, this defect alone would not be sufficient to cause an outright rejection of the Petition since it could be cured by affording the Petitioners reasonable time to supply specific details relating to their interest. However, such action is unwarranted since, as is set out in Section III *infra*, the Petition also fails to meet the contentions requirements of Section 2.714. Therefore, even if the Petitioners could with additional time meet the interest requirements of Section 2.714, the Petition nonetheless would have to be denied because it does not raise any valid contentions. *Northern States Power Company (Prairie Island Nuclear Generating Plant, Units 1 and 2)*, CLI-73-12, RAI-73-4, 241 (April 18, 1973), aff'd; *BPI, et al.* v. *AEC*, 502 F.2d 425 (D. C. Cir. 1974).

III. THE PETITIONERS' CONTENTIONS

Having discussed the interest aspects of the Petition, the Board will now consider the specific contentions with regard to whether they can be accepted as raising valid issues in controversy. The Petition contains five separate contentions in paragraphs numbered 2 through 6, and the Board will deal with them in order.

1. The first contention (paragraph 2 of the Petition) asserts that the emergency core cooling system changes required by the Commission's modification order are totally inadequate to protect the public in the event of a loss of coolant accident. However, the Petitioners do not allege that the proposed changes fail to meet the Final Acceptance Criteria. Rather, the challenge is to the Final Acceptance Criteria themselves on the basis that there is an absence of definitive experimental verification. Such a challenge to the Final Acceptance Criteria is impermissible under 10 CFR 2.758, and similar challenges to the Interim Acceptance Criteria have been consistently rejected.[5]

[5] The initial case in this regard was *Boston Edison Company (Pilgrim Nuclear Power Station)*, ALAB-83, WASH-1218 (Supplement 1), 552-561 (December 4, 1972).

The rationale behind excluding challenges to the criteria is that such challenges should have been properly made during the course of the extended rulemaking hearing regarding ECCS. *Rulemaking Hearing—Acceptance Criteria for Emergency Core Cooling Systems for Light-Water-Cooled Nuclear Power Reactors*, CLI-73-39, RAI-73-12, 1085 (December 28, 1973). Further, a clear distinction can be drawn between impermissible contentions challenging the Final Acceptance Criteria and valid contentions asserting that a particular facility does not comply with the criteria. Since the contention under consideration seeks to challenge the criteria rather than question the facility's compliance with the Final Acceptance Criteria, it must be excluded as an issue in controversy.

2. The second contention (paragraph 3 of the Petition) alleges that "neither the Commission nor the reactor vendor has shown that computer technology is even capable of replacing experimentally determined parameters in describing very complex systems". Basically, this contention asserts that the Interim Acceptance Criteria (and necessarily the Final Acceptance Criteria) are unreliable since they were formulated using computer modeling to predict ECCS cooling performance. The validity of the use of computer modeling was, however, a matter considered and resolved in the above cited rulemaking proceeding on the criteria. It is clear that this contention constitutes an impermissible challenge to the criteria and, for the same reasons set out in the above analysis of the Petitioners' first contention, the Board must also reject this second contention. Accordingly, the Board hereby excludes the Petitioners' second contention as an issue in controversy.

3. The third contention (paragraph 4 of the Petition) asserts that the facility's ECCS system does not have a manual shutdown capability. This again constitutes a challenge to the Final Acceptance Criteria since a manual shutdown capability is not required in those criteria. Again, as with the first two contentions, this contention must be rejected on the basis that it constitutes an impermissible challenge to the Final Acceptance Criteria.

Moreover, viewed from another aspect, this contention could be considered as asserting that an additional system providing for manual shutdown should be installed at the facility in the event the ECCS fails. However, the manual shutdown capability called for by this contention is different from the protection provided by a properly functioning ECCS system and the gravamen of this claim is that such manual shutdown capability should be provided when the ECCS fails to perform its function. However, such a contention is outside the scope of the modification order, the purpose of which is to assure the ECCS will not fail to perform its function. In other words, whether an alternate manual shutdown capability is needed for protection in the event the ECCS system might fail is a question outside the scope of determining whether ECCS will perform its function, which is what the requirements of the modification order seek to assure.

In view of the above, the Board hereby excludes the Petitioners' third contention as an issue in controversy.

4. The fourth contention (paragraph 5 of the Petition) alleges that the ECCS system is inadequate in the event of pressure vessel failure. The Petitioners state that the ECCS was not designed to mitigate the consequences of pressure vessel failure. However, the issue of pressure vessel failure is a different subject than that covered by the modification order, which provides requirements to assure that the ECCS system for the facility will meet the Final Acceptance Criteria so the ECCS will perform its function. Since pressure vessel failure is not encompassed within the scope of the Final Acceptance Criteria, the contention must be rejected as a challenge to the Final Acceptance Criteria. On the other hand, this contention could be considered as raising the issue of pressure vessel failure as a separate matter. This, however, would be beyond the scope of the issues raised by the modification order and would, therefore, be precluded from consideration by this Board. Moreover, even if the pressure vessel failure were within the scope of the modification order, the Board notes that, to raise that issue in an individual licensing proceeding, there must be a showing of special circumstances associated with the facility pressure vessels. *Consolidated Edison Company of New York (Indian Point, Unit 2)*, CLI-72-29, TID-26300, 20 (October 26, 1972). Since the Petitioners make no showing of any special circumstances, the contention would be properly excludable on that ground also.

In view of the above, the Board hereby excludes the Petitioners' fourth contention as an issue in controversy.

5. The fifth contention (paragraph 6 of the Petition) asserts that because of the Price-Anderson Act the facility should be shut down immediately until the issues raised in prior contentions (paragraphs 2, 3, and 5 of the Petition) have been unequivocably experimentally demonstrated. However, as this paragraph relies on contentions previously rejected by the Board, it suffers from the same infirmities associated with those contentions and accordingly must be excluded as an issue in controversy. Moreover, with the exception of reference back to the prior contentions, this contention does not provide sufficient specificity regarding the connection between any Price-Anderson Act considerations and the issues that could be raised under the modification order. It is, therefore, too vague to meet the requirements of Section 2.714. On this ground, also, the Petitioners' fifth contention must be excluded as an issue in controversy in this proceeding.

IV. CONCLUSIONS

In summary, the Board concludes that the Petition is defective in that (1) it does not set forth sufficient detail to establish that the interest requirements of Section 2.714 have been met and (2) it does not raise any contentions which are

admissible as issues in controversy in connection with the modification order. Accordingly, the Board hereby denies the Petition for Intervention and the request for a hearing contained therein.

ACCORDINGLY, IT IS HEREBY ORDERED that the Petition for Intervention be, and it hereby is, denied. Under the terms of 10 CFR 2.714a this Order is appealable by the Petitioners on the question whether the Petition and/or the hearing request should have been granted in whole or in part. In accordance with Section 2.714a, any appeal of this Order must be made to the Atomic Safety and Licensing Appeal Board within five (5) days after service of this Order on the Petitioners. Any appeal must be asserted by the filing of a notice of appeal and an accompanying supporting brief. Any other party may file a brief in support of or in opposition to the appeal within five (5) days of the service of the appeal.

Although this Memorandum and Order is executed only by the Board Chairman, the other Board members participated in its preparation and it constitutes an action by the entire Board.

BY ORDER OF THE ATOMIC SAFETY AND LICENSING BOARD

Daniel M. Head, Chairman

Issued at Bethesda, Maryland
this 24th day of April, 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-23

ATOMIC SAFETY AND LICENSING BOARD

J. B. Farmakides, Chairman
K. G. Elzinga, Member
J. F. Tubridy, Member

In the Matter of

DUKE POWER COMPANY

(Oconee Units 1, 2 and 3
McGuire Units 1 and 2)

Docket Nos. 50-269A, 50-270A, 50-287A, 50-369A, and 50-370A

April 23, 1975

Board accepts settlement agreement between applicant and municipal intervenors, and terminates anti-trust proceedings.

LICENSING BOARD: SCOPE OF REVIEW

Before accepting a settlement agreement, it is the duty of a Licensing Board to review such agreement to ascertain whether it is in the public interest.

ORDER

On March 28, 1974, the Applicant and the cities of Albemarle, High Point, Lexington, Lincolnton, Monroe, and Shelby and the town of Landis, Municipal Intervenors in the above-captioned proceeding, jointly moved the Board to accept a settlement agreement negotiated between them and to terminate the proceedings.

The proposed settlement agreement incorporated a statement of commitments which had been the basis of an earlier settlement agreement previously reached in this proceeding among the Applicant, Department of Justice, and the Commission. By Order dated May 24, 1974, the Board found the earlier agreement and the provisions in the statement of commitments to be in the public interest and approved that settlement. The Municipal Intervenors were not a party to this settlement.

The Applicant and Intervenors continued negotiations in an attempt to resolve their differences. Such negotiations were undertaken in cooperation with the North Carolina Electric Membership Corporation and the Blue Ridge Electric Membership Corporation, Intervenors in another proceeding involving Catawba Units 1 and 2,[1] also pending before this Board.

A settlement among the parties in the above-captioned proceeding as well as in the Catawba proceeding has now been reached, has been reduced to writing, and has been presented to the Board. The Board has reviewed said settlement agreement and the attached statement of commitments and finds them to be in the public interest with respect to the parties in both the above-captioned proceeding as well as the proceeding involving Catawba Units 1 and 2.

Accordingly, the settlement agreement attached hereto including the Board's May 24, 1974 Order and statement of commitments of the Applicant is hereby incorporated herein and made a part of this Order and shall be considered to constitute conditions to all permits and licenses issued or to be issued by the Nuclear Regulatory Commission with respect to Oconee Units 1, 2 and 3 and the McGuire Units 1 and 2.

In view thereof the above-captioned proceeding is hereby terminated.

It is so ORDERED.

ATOMIC SAFETY AND
LICENSING BOARD

Kenneth G. Elzinga, Member

Joseph F. Tubridy, Member

John B. Farmakides, Chairman

Dated at Bethesda, Maryland,
this 23rd day of April 1975.

(The settlement agreement has been omitted from this publication but is available at the Commission's Public Document Room, Washington, D. C.)

[1] Docket Numbers 50-413A and 50-414A.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-24

ATOMIC SAFETY AND LICENSING BOARD

J. B. Farmakides, Chairman
K. G. Elzinga, Member
J. F. Tubridy, Member

In the Matter of
DUKE POWER COMPANY
(Catawba Units 1 and 2)

Docket Nos. 50-413A
50-414A
April 23, 1975

Board accepts settlement agreement between applicant and municipal intervenors, and terminates anti-trust proceeding.

LICENSING BOARD: SCOPE OF REVIEW

Before accepting a settlement agreement, it is the duty of a Licensing Board to review such agreement to ascertain whether it is in the public interest.

ORDER

On March 28, 1974, the Applicant and the cities of Albemarle, High Point, Lexington, Lincolnton, Monroe, and Shelby and the town of Landis (collectively, the Municipal Intervenors) and the North Carolina Electric Membership Corporation and the Blue Ridge Electric Membership Corporation (collectively, the Cooperative Intervenors) in the above-captioned proceeding jointly moved the Board to accept a settlement agreement negotiated between them and to terminate the proceedings.

The proposed settlement agreement incorporated a statement of commitments which had been the basis of an earlier settlement agreement previously reached in this proceeding among the Applicant, Department of Justice, and the Commission. By Order dated May 24, 1974, in the Oconee-McGuire[1] proceeding before this Board, it found the earlier agreement and the provisions in the statement of commitments to be in the public interest and approved that settlement. The intervenors were not a party to that settlement.

[1] Docket Numbers 50-269A, 50-270A, 50-287A, 50-369A, and 50-370A.

A settlement among the parties in the above-captioned proceeding as well as in the Oconee-McGuire proceedings has now been reached, has been reduced to writing, and has been presented to the Board. The Board has reviewed said settlement agreement and the attached statement of commitments and finds them to be in the public interest with respect to the parties in both the above-captioned proceeding as well as the proceeding involving the Oconee-McGuire units.

Accordingly, the settlement agreement attached hereto including the statement of commitments of the Applicant is hereby incorporated herein and made a part of this Order and shall be considered to constitute conditions to all permits and licenses issued or to be issued by the Nuclear Regulatory Commission with respect to the Catawba Units 1 and 2.

In view thereof the above-captioned proceeding is terminated.

It is so ORDERED.

ATOMIC SAFETY AND
LICENSING BOARD

Kenneth G. Elzinga, Member

Joseph F. Tubridy, Member

John B. Farmakides, Chairman

Dated at Bethesda, Maryland,
this 23rd day of April 1975.

(The settlement agreement has been omitted from this publication but is available at the Commission's Public Document Room, Washington, D. C.)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-25

ATOMIC SAFETY AND LICENSING BOARD

John B. Farmakides, Chairman
David L. Hetrick, Member
Frank F. Hooper, Member

In the Matter of

Docket No. 50-389

FLORIDA POWER & LIGHT COMPANY

April 25, 1975

(St. Lucie Nuclear Power Plant Unit No. 2)

Upon applicant's petition for reconsideration of several findings of partial initial decision (LBP-75-5), Licensing Board (1) withdraws its findings on guideline dose for occupational exposure of plant personnel and leaves such matter for further consideration at the health and safety hearing, where staff proposes to offer additional evidence; (2) clarifies and reaffirms its finding on sewer line connection to the plant; and (3) reaffirms its ruling requiring further consideration of stalled hurricanes at the health and safety hearing.

Petition for reconsideration denied in part, and granted in part.

NEPA: COST-BENEFIT BALANCE

In arriving at the environmental cost of the total genetic radiation dosage to be received by the entire population, the genetic dose to plant personnel should be considered as a dose to future generations and should be weighed along with the dose to non-employees.

SUPPLEMENT TO THE BOARD'S PARTIAL INITIAL DECISION RE APPLICANT'S PETITION FOR RECONSIDERATION

1. On March 19, 1975, the Florida Power & Light Company (Applicant) filed a Petition for Reconsideration of the Board's Partial Initial Decision—Environmental and Site Suitability (dated February 28, 1975). The Applicant requested reconsideration of the Board's findings relating to: (a) guideline dose

for plant personnel, (b) sewer line connection to the plant, and (c) the need for further consideration of stalled hurricanes.

2. On March 25, 1974, Martin H. Hodder, *et al.*, (Intervenors), filed a motion for a 7-day extension of time to respond to the Applicant's petition. On March 28, 1975, following a telephone conference call in which the parties indicated no objection provided their time likewise was extended and that any such extension did not waive any rights they may have to object to Intervenor's response, the motion was granted. Pursuant thereto, on April 7, 1975 the Intervenors filed a response in which they objected to each of the requests made by the Applicant, and in addition the Intervenor stated as follows:

> . . . . pursuant to 10 CFR 2.73 also make an offer of proof of their contentions by offering the ASLB the following evidence which has just become available and is new information. . . .

With respect to this "offer of proof" the Board considers it to be a motion to reopen the record, not directly related to the petition before us, and will so treat it in a separate memorandum and order.

3. With respect to the three issues raised by the Applicant in its petition for reconsideration, the Board will treat each in turn. As to the issue involving the use of 75 man-rem/yr as a guideline dose for occupational exposure, the Board notes as follows: From the point of view of the cost-benefit analysis performed by the Board, the environmental cost in terms of the total genetic dose received by the entire population—including plant personnel—is a primary factor. In such a balance the genetic dose to plant personnel should be considered as a dose to future generations and should be weighed along with the dose to non-employees. As the Applicant and Staff correctly point out, the 450 man-rem/yr figure maximizes the genetic costs, and the Board adopted this figure for purposes of conservatism in evaluating this factor among others in the cost benefit balance. The record is clear that even with the 450 man-rem/yr figure the cost-benefit balance from an environmental viewpoint is in favor of the construction of the plant. However, the balance becomes even more favorable if the 75 man-rem/yr guideline is used. Thus, several factors led the Board to recommend the 75 man-rem/yr limitation: the fact that the cost benefit balance can be further improved by reducing the plant personnel dose from 450 man-rem/yr to 75 man-rem/yr; the possibility of reducing the in-plant exposure to operating personnel; and the fact that the Licensing Board, designated for Unit No. 1 (construction of which produced the initial, major environmental impact compared to the relatively minor impact of the construction of Unit No. 2), used the 75 man-rem/yr in its NEPA cost-benefit balance. The Board also considered that this guideline would provide further incentive to the Applicant to do everything reasonable within its power to minimize exposures to plant personnel. This would include continual surveillance and review of policies, procedures, processes, and equipment, as well as a continual evaluation of

technological advances, new processes, and improved equipment as they become available.

4. The Applicant and Staff are persuasive in showing the Board that there may be a need to relax the 75 man-rem/yr limitation under certain conditions involving unplanned-for maintenance and emergency operation. Thus, as a consequence of reexamining the entire record on this point, the Board was predisposed and prepared to reaffirm its finding with some modification to require: (1) the establishment of a range of 75 man-rem/yr up to 450 man-rem/yr as a guideline dose for in-plant occupational exposure; (2) adherence by the Applicant to the 75 man-rem/yr level for as many years as possible; (3) at the point when the Applicant could no longer adhere to the 75 man-rem/yr limitation, then the Applicant would so justify to the Staff and request an upward revision of the limitation to a reasonably higher level not to exceed 450 man-rem/yr. However, in view of the statements of Applicant and Staff, especially the Staff's position that additional evidence they propose to present at the forthcoming hearing on radiological health and safety would clarify the matter, the Board concluded that this subject matter should be considered further at the forthcoming hearing, that the record with respect to it should not now be closed, and that it does not materially affect the Board's other environmental and site suitability findings. Therefore the Board's previous findings with respect to this issue should be withdrawn and the matter considered further at the next hearing. Accordingly, the Board hereby rules as follows:

(1) the last sentence of paragraph 28, and the entire paragraph 126(c) is hereby cancelled;

(2) the subject matter will be considered in greater detail by the Board at the forthcoming radiological health and safety hearings; and

(3) the Staff shall offer further evidence on this matter at the health and safety hearing. The other parties may do likewise.

5. With respect to the sewer line issue the Board notes that the Staff, in its consideration of the disposal of wastes problem (FES 3.7.1) recognized that the Applicant's system will normally be adequate, but also recognized that "plugging problems" may occur. The Staff therefore recommended that the Applicant connect into the municipal sewage treatment facilities "as soon as a sewer line is installed down the island".[1] Primarily because of such potential plugging problems and in view of the entire record, the Board concluded that a connection should be made within a reasonable time; and that requiring the

[1] The Staff's language "down the island" is not clear as to the time or circumstances under which connection to sewer facilities should be required. Therefore in setting the five mile distance, one of the Board's reasons was to correct this potential ambiguity.

Applicant to connect when the line on the Island came within five miles of the plant site was fair and reasonable to all parties. By specifying a five-mile distance for connection with municipal facilities, the Board has no intention of requiring the Applicant to extend a sewer line across the Indian River.

6. Accordingly, the Board hereby (a) cancels the last sentence of paragraph 105 and substitutes in lieu thereof, the following:

> The Applicant has committed itself to connect with municipal sewage treatment facilities if and when a sewer line is extended to the Applicant's site. However, in view of the entire record, including FES 3.7.1, the Board finds that such a connection should be made as soon as a sewer line on Hutchinson Island is brought within approximately five miles of the plant and hereby makes this a condition for construction of St. Lucie Unit No. 2.

(b) Paragraph 126 is amended to add the following subparagraph:

> (n) The Applicant shall connect into the municipal sewage treatment facilities as soon as a sewer line on Hutchinson Island is brought within approximately five miles of the plant site.

7. After review of Applicant's petition with respect to the stalled hurricane issue, and the objections thereto of the Staff and Intervenors, the Board reaffirms its position that stalled hurricanes must be considered at the next hearing. The Staff has correctly noted that there may be hurricane conditions which may result in erosional damage greater than proposed at the environmental hearings. The Applicant has correctly pointed out that a PMH is a hypothetical hurricane with the most severe characteristics that can occur in a given region. By definition a PMH is a moving hurricane; there is nothing in its definition to indicate that such a storm, or a storm of lesser intensity, might not stall, adjacent to a coastline for a period of 2 to 4 days. Therefore the record is not clear as to possible damage arising from combination of a hurricane of maximum, or near maximum, intensity and of maximum duration. Evidence in the record shows that hurricanes frequently slow down, stall and increase in intensity. In the Board's opinion any additional erosional impact to the site that may occur because of a combination of high intensity, long duration hurricanes is not likely to make the site unsuitable. However, this type of impact may require additional safety related structures beyond those considered by the Board in its Partial Initial Decision. Therefore to make an adequate evaluation of the potential hurricane damage to safety related structures, the Board needs additional information on: the expected frequency of high intensity, long duration hurricanes at the St. Lucie site; and on the expected erosional damage to the Island and to the St. Lucie plant from such hurricanes.

In summary, the Applicant's petition for reconsideration is denied in part and granted in part. The Board's Partial Initial Decision–Environmental and Site

Suitability, is modified as further specified and set forth above as to paragraphs 28, 105, 126(c) and 126(n).

It is so ORDERED.

ATOMIC SAFETY AND LICENSING BOARD

David L. Hetrick, Member

Frank F. Hooper, Member

John B. Farmakides, Chairman

Dated at Bethesda, Maryland,
this 25th day of April 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-26

ATOMIC SAFETY AND LICENSING BOARD

J. B. Farmakides, Chairman
D. L. Hetrick, Member
F. F. Hooper, Member

In the Matter of

FLORIDA POWER & LIGHT COMPANY

(St. Lucie Plant, Unit No. 2)

Docket No. 50-389

April 25, 1975

Upon intervenors' motion to reopen the record to admit report as new evidence, Licensing Board finds that report offered (1) does not materially affect the partial initial decision, which was based on an adequate record and supported by substantial evidence; (2) is not at this time to be considered the position of the State of Florida; and (3) is not timely offered, since it does not appear to constitute new evidence related to the contested issues.

Motion to reopen the record denied, without prejudice to intervenors' offering said report at forthcoming health and safety hearing.

RULES OF PRACTICE: PETITION TO REOPEN THE RECORD

A Licensing Board is expected to reopen the record when matters of "major significance to plant safety" are raised, regarding either previously admitted contentions or new issues. See *Vermont Yankee* (ALAB-124).

MEMORANDUM AND ORDER ON INTERVENORS' MOTION TO REOPEN THE RECORD

In a "Supplement to the Board's Partial Initial Decision re Applicant's Petition for Reconsideration", issued this date, the Board supplemented its Partial Initial Decision with respect to three issues. In addition, in said

supplement, the Board noted that "Intervenors' Response to Applicant's Petition for Reconsideration and Offer of Proof", dated April 7, 1975, not only controverted the Applicant's petition for reconsideration, but also made an "offer of proof" of certain alleged new evidence.[1] The Board considered the "offer of proof" of new evidence to be a separate motion to reopen the record and ruled that it would be treated in a separate memorandum and order.

The Intervenors do not state with specificity the purpose for which their "offer of proof" is made other than that the report[2] "... constitutes new information and as such there is good cause for receiving said document into evidence...." The Intervenors also include extracted portions of the report in their response apparently to demonstrate that dose guidelines should be as low as practicable, not a matter in issue here.

As clearly set forth in *Vermont Yankee Nuclear Power Corporation* (ALAB-124, RAI-73-5, p. 365), a Licensing Board is expected to reopen the record when matters of "major significance to plant safety" are raised, either as to previously admitted contentions, or on new issues. While the Intervenors' Response is not without ambiguity, the Board treated the Intervenors' "offer of proof" as a motion to reopen the record since Intervenors had cited "10 CFR 2.73 [sic]" and because they alleged that the "offer of proof" contained new information. The specific requirements of 10 CFR 2.730(b) were not observed; however, this factor was not the controlling element in the Board's decision as stated below.

The "document" is a lengthy report of approximately 459 pages, apparently prepared by a certain "Power Plant Siting Committee, Florida International University, Daniel F. Jackson–Project Director, and Michael F. Chenoweth–Research Associate, Division of Environmental Technology & Urban Systems, School of Technology." It was prepared under a contractual arrangement with the State of Florida Department of Pollution Control.

Intervenors apparently contend that this report represents a State of Florida position. The Board does not agree. As stated by Applicant, it appears to be nothing more at this time than a report prepared as one step in a multi-step process leading to a final State position on the matter. Thus, the Board does not consider the report to be the position of the State of Florida at this time.

A preliminary review of the report shows it to be an accumulation of materials, a critique based thereon, and conclusions. While some of the conclusions are contrary to those arrived at by this Board, we are not persuaded thereby that said report materially affects our Partial Initial Decision sufficiently so as to require a reopening of the record. The findings of the Board were

[1] The document (459 pages) so offered as new evidence is entitled "Final Report—Review of Application for Site Certification, Florida Power and Light Company, St. Lucie Plant No. 2, Hutchinson Island by Power Plant Siting Committee, Florida International University, 10 January 1975."

[2] *Id.*

supported by substantial evidence and based on an adequate record developed by all the parties. Moreover, the hearing record includes the benefit of cross-examination, and Board questions and responses thereto, for further testing and clarification. Based on initial review, it appears that most of the compilation of documents in the report pertaining to the contested issues are not new evidence.

In addition, absent a clear identification by the Intervenors of what portion, or portions, of the report contains new evidence that may add to or expand the scope of the previously admitted contentions, and since the report is primarily an accumulation of papers and documents already in the record, or previously available to the parties, the Board considers the "offer of proof" to be untimely.

Furthermore the reliability and credibility of certain portions of the report have been seriously questioned. The Applicant asserts that the extracts of the report, included in the Intervenors' April 7 response to the Applicant's petition, contain substantial errors which the Applicant proceeds to identify at length and with great specificity. Without ruling thereon at this time, the Board will afford an opportunity to the Intervenors to offer the report at the forthcoming hearing on health and safety.

Accordingly, the motion to reopen the record to admit the above identified report as new evidence is denied without prejudice to Intervenors to offer said report at the forthcoming hearing on radiological health and safety.

It is so ORDERED.

ATOMIC SAFETY AND
LICENSING BOARD

David L. Hetrick, Member

Frank F. Hooper, Member

John B. Farmakides, Chairman

Dated at Bethesda, Maryland
this 25th day of April 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

CLI-75-6

COMMISSIONERS:
William A. Anders, Chairman
Victor Gilinsky
Richard T. Kennedy

In the Matter of

SOUTHERN CALIFORNIA EDISON COMPANY, *et al.*

(San Onofre Nuclear Generating Station, Units 2 and 3)

Docket Nos. 50-361
50-362

May 15, 1975

Commission defers its review of ALAB-268 until applicant submits an alternative exclusion area proposal and Appeal Board passes on its acceptability and resolves other related issues.

MEMORANDUM AND ORDER

The Atomic Safety and Licensing Appeal Board has concluded that the "exclusion area" proposed by the applicants in relation to construction permits for Units 2 and 3 of the San Onofre facility does not meet the control requirements of 10 CFR 100.3(a). ALAB-268, NRCI-75/4R 383. Consequently, the applicants have been given a reasonable period of time in which to submit an alternative exclusion area proposal. Pending the submission of such a proposal, the Board has retained jurisdiction of the proceeding. In view of its holding on the control issue, the Board did not reach other questions in the case.

In these circumstances, we are deferring our review until the exclusion area issue and related issues have been resolved by the Appeal Board. Pursuant to 10 CFR 2.711(a), the period of time within which the Commission may review the decision of the Atomic Safety and Licensing Appeal Board dated April 25, 1975 (ALAB-268, NRCI-75/4R 383), as well as the anticipated decision of the Appeal Board concerning the acceptability of the exclusion area for Units 2 and 3 of the San Onofre facility, under 10 CFR 2.786, is hereby extended until 20 days

following the latter decision. This time extension does not stay the effect of ALAB-268.

It is so ORDERED.

By the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D. C.
this 15th day of May, 1975.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-270

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Richard S. Salzman, Chairman
Dr. Lawrence R. Quarles, Member
Michael C. Farrar, Member

In the Matter of
CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)

Construction Permit
Nos. 81 and 82

Mr. Myron Cherry, Chicago, Illinois, for intervenors Saginaw Valley Nuclear Study Group, *et al.*, appellants.

Messrs. Michael I. Miller and R. Rex Renfrow, III, Chicago, Illinois, for respondent Consumers Power Company, appellee.

Mr. P. Robert Brown, Jr., Detroit, Michigan, for intervenors Bechtel Power Corporation and Bechtel Associates Professional Corporation, appellees.

Mr. James P. Murray, Jr., for the Nuclear Regulatory Commission Staff.

Because of intervenors' unexcused failure to file a brief in support of their exceptions, the Appeal Board grants licensee's motion to strike the exceptions but denies licensee's motion to affirm the decisions below in this "show cause" proceeding; intervenors dismissed as parties but appellate jurisdiction over the case is retained pending the Board's completion of its customary review *sua sponte*.

RULES OF PRACTICE: APPELLATE PROCEDURE

Under the Rules, appellants must support their exceptions with a brief describing the precise portions of the record relied upon and containing information or argument sufficient to allow an intelligent disposition of the issues raised on appeal.

RULES OF PRACTICE: APPELLATE REVIEW

Notwithstanding its dismissal from the case of the only party to file exceptions, the Appeal Board will review, *sua sponte*, Licensing Board decisions in a "show cause" proceeding involving compliance with quality assurance regulations.

DECISION

May 8, 1975

The Licensing Board rendered an initial decision favorable to the respondent Consumers Power Company in this "show cause" proceeding on September 25, 1974; the Board thereafter denied the Saginaw Intervenors' motion to reopen the record and reconsider that decision on March 5, 1975. See LBP-74-71, RAI-74-9, 584, and LBP-75-6, NRCI-75/3 227. The Saginaw Intervenors have appealed from those decisions by excepting to them, but have not briefed their exceptions as the Commission's Rules of Practice require.[1] Saginaw's briefing time having expired, Consumers now moves to strike the exceptions[2] and, because no other party has appealed, to affirm the decisions below. The other parties, the regulatory staff and Bechtel (Consumers' architect-engineers), support Consumers' motion.

I

The Saginaw Intervenors' opposition to the motion to strike is essentially twofold: First, they claim that without a Commission award of attorneys' fees and expenses they could not afford to file a brief, and assert that the Commission's failure to consider their request for such an award "on the merits" is the root cause of their inability to participate more fully. There is a very short answer to this claim. The Commission acted "on the merits" of Saginaw's request last July and denied their application "for lack of a proper showing of need," noting that at least two of the organizations litigating under the Saginaw banner—the Sierra Club and the United Auto Workers—had substantial financial assets. CLI-74-26, RAI-74-7, 1 (1974).[3] In these circumstances, the reluctance of those organizations to support litigation voluntarily undertaken

[1] 10 C.F.R. §2.762(a).

[2] A motion for this purpose is authorized by 10 C.F.R. §2.762(e).

[3] The Commission observed that at the time it ruled, the UAW's assets exceeded $127,000,000. See RAI-74-7 at 2.

may not be attributed to exiguous finances and does not excuse the failure to brief the exceptions.

The alternate justification put forward by the Saginaw Intervenors for not filing a brief is the assertion that their exceptions are based "entirely on legal grounds" which were "fully briefed" before the trial board. We need not decide whether such factors would justify a motion to dispense with a brief on appeal, for they are not present in this record.[4]

To begin with, Saginaw's exceptions are not confined, as suggested, to pure issues of law. They challenge, *inter alia*, the sufficiency of the evidence to support the findings below concerning respondent's implementation of the Commission's "quality assurance" regulations (exception 3) and the adequacy of the Commission's own inspection program (exception 9). Such exceptions raise, at best, mixed questions of law and fact which manifestly cannot be decided in the abstract; their resolution turns on matters of proof.[5] Saginaw's failure to brief them deprives us precisely of that assistance which the Rules of Practice are designed to have an appellant provide, *i.e.*, to flesh out the bare bones exceptions "with the precise portion of the record relied on in support of the assertion of error," 10 C.F.R. §2.762(a), and to present us "with sufficient information or argument to allow an intelligent disposition of [the] issue[s]."[6]

Neither is the assertion correct that Saginaw's position is fully presented in the papers it submitted to the Licensing Board. On the contrary, our perusal of the record reveals that Saginaw offered no evidence, tendered no witnesses and attempted no cross-examination. Moreover, they filed neither a trial brief nor proposed findings of fact although expressly invited to do so by the Licensing Board despite their lack of participation at the hearing. Essentially the only Saginaw papers in the record which outline their position are a six-page motion to reconsider the initial decision and reopen the record, and their "comments" concerning the oral arguments presented by other parties on that motion.[7] The contents of those documents fall far short of being equivalent to a brief in support of exceptions as required by the Rules of Practice.

[4] Saginaw did not file a timely motion to submit their appeal on their papers below. Rather, as noted, they allowed the briefing time (and more) to expire and they urge this ground only as a defense to the motion to strike their exceptions. The disposition we make of this motion, however, makes it unnecessary to decide whether any request to submit an appeal on the papers below must be made when the exceptions are filed and not after the briefing period has run.

[5] *E.g.*, Saginaw's Exception No. 3 is as follows: "There is no rational support for the conclusion that QA implementation will continue throughout the construction process. RAI-74-9, 600 *et seq.*"

[6] *United States* v. *White*, 454 F.2d 435, 439 (7th Cir. 1971), discussing the analogous provision of the Federal Rules of Appellate Procedure.

[7] The Licensing Board accepted those written comments despite Saginaw's failure to attend the oral argument (which was held in Chicago for their counsel's convenience) or to advise that Board in advance of the expected absence. See NRCI-75/3 at 230.

The Saginaw Intervenors have displayed a similar disdain for the Commission's Rules of Practice on earlier occasions. And they have previously been admonished by us that "the right of participation in an administrative proceeding carries with it the obligation of a party to assist in 'making the system work' and to aid the agency in discharging the statutory obligations with which it is charged."[8] The Rules of Practice were not promulgated capriciously. They were drafted to insure that, when followed, the arguments and positions of all parties—applicants, staff and intervenors—would be spread fully upon the record in order to permit fair rebuttal by those holding opposing views and to facilitate our ultimate evaluation of the competing contentions. Disregard of the Rules frustrates those salutary purposes and burdens rather than assists the adjudicator's task. We see no reason why, having previously instructed the Saginaw Intervenors about the necessity of proceeding in accordance with the Rules, we need continue to excuse their inability (or unwillingness) to follow the course all other parties must take, particularly in circumstances where (their contrary assertions notwithstanding) they have contributed little to the development of the record.[9] We therefore grant the motion to strike their exceptions and dismiss the Saginaw Intervenors from the appeal.

II

We decline at this time to affirm the decisions below. An order directing a company to "show cause" why its license should not be suspended is not a matter to be treated lightly. See *New York Shipbuilding Corporation*, 1 AEC 842, 844-45 (1961). This is particularly so where non-compliance with the Commission's quality assurance regulations is at issue, a problem which has plagued the construction of this facility. See, *e.g.*, ALAB-123, *supra*, n. 7; ALAB-147, RAI-73-9, 636 (1973); and ALAB-152, RAI-73-10, 816 (1973). We therefore think it inappropriate to depart from our customary practice in uncontested cases of reviewing the entire record *sua sponte*.

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[8] *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-123, RAI-73-5, 331 at 332 (1973).

[9] In responding to interrogatories propounded to them by respondent, the Saginaw Intervenors admitted that they were in possession of no facts relevant to this proceeding not known to the other parties and the staff. Saginaw's answers to Consumers' interrogatories, dated June 4, 1974, pp. 2-3.

The motion to strike is *granted*; the Saginaw Intervenors are *dismissed* as parties to the proceeding; jurisdiction over the case is *retained* pending completion of our review *sua sponte*.[10]

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Romayne M. Skrutski
Secretary to the Appeal Board

[10] The remaining parties need file no further papers unless we ask for their views on some specific issue.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-271

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
Michael C. Farrar, Member

In the Matter of

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, ET AL.

(Seabrook Station, Units 1 and 2)

Docket Nos. 50-443
50-444

Messrs. John A. Ritsher and Thomas G. Dignan, Jr., and Ms. Eleanor D. Acheson, Boston, Massachusetts, for the applicants, Public Service Company of New Hampshire, *et al.*

Messrs. Frederic S. Gray and Thomas M. Bruen for the NRC staff.

Upon applicant's petition for order directing the Licensing Board to certify the issue of a construction-permit applicant's obligation to devise an emergency evacuation plan for an area outside the LPZ, Appeal Board rules (1) that 10 CFR §2.718(i) and §2.785(b) explicitly gives it the power to direct certification of a legal issue raised in a pending proceeding, regardless of whether the licensing board has already ruled on that issue; (2) that a party may request a §2.718(i) certification; and (3) that a party filing such a request must at least show that, without certification, the public interest will suffer or unusual delay or expense will be encountered. Appeal Board finds that applicant failed to make the requisite showing of exceptional circumstances.

Petition for order directing certification denied.

RULES OF PRACTICE: APPELLATE PROCEDURE

The taking of an appeal from an interlocutory ruling of a licensing board (including such board's refusal to refer an interlocutory ruling) is prohibited, unless it falls within the ambit of 10 CFR §2.714a. See 10 CFR §2.730(f).

RULES OF PRACTICE: APPELLATE PROCEDURE

An appeal board has the power to direct the certification of legal issues raised in proceedings still pending before licensing boards. See 10 CFR §2.718(i) and §2.785(b).

RULES OF PRACTICE: APPELLATE PROCEDURE

Certification pursuant to 10 CFR §2.718(i) may be directed as to any question raised before a licensing board which is thought deserving of early dispositive resolution, and is in no way limited to issues which have not yet been ruled upon by that board in the proceeding at bar.

RULES OF PRACTICE: APPELLATE PROCEDURE

A request for a §2.718(i) certification brought by a party is not an impermissible interlocutory appeal, since it does not invoke Appeal Board jurisdiction as a matter of right but rather seeks only the exercise of a discretionary power.

RULES OF PRACTICE: APPELLATE PROCEDURE

The general policy of the Commission does not favor the singling out of an issue for appellate examination during the continued pendency of the trial proceeding in which that issue came to the fore.

RULES OF PRACTICE: APPELLATE PROCEDURE

A party requesting a §2.718(i) certification must show at least that, without such certification, the public interest will suffer or unusual delay or expense will be encountered.

RULES OF PRACTICE: APPELLATE PROCEDURE

The certification procedure is not automatically triggered when, during the course of a proceeding, a licensing board makes an interlocutory, non-appealable pronouncement at possible variance with the previously expressed views of another licensing board; certification is appropriate only where some special circumstance makes immediate elimination of the decisional conflict imperative.

RULES OF PRACTICE: SCOPE OF INFORMATION REQUIRED FOR LICENSING

At the construction permit stage, an applicant need only establish the feasibility of whatever protective measures must be employed in the event of an accident; detailed emergency plans can await the operating license stage.

MEMORANDUM AND ORDER

May 21, 1975

Now before the Licensing Board is this construction permit proceeding involving Units 1 and 2 of the Seabrook Station, which is to be located on the Atlantic Coast approximately 11 miles south of Portsmouth, New Hampshire. Within a three-mile radius of the facility site lie the Hampton-Seabrook beach areas. During the summer the residential population of these areas increases significantly and, in addition, there are a considerable number of single-day visitors. Final Environmental Statement pp. 2-1, 2-3.

One of the issues raised by three intervenors in the proceeding[1] relates to the obligation of the applicants to devise an evacuation plan for Hampton Beach which would be put into effect in the event of an emergency. Those intervenors contend (1) that "considering the location and operation of the Seabrook facility," the formulation of such a plan is required by Appendix E to 10 CFR Part 50;[2] and (2) that, to this point, the applicants' consideration of Hampton Beach evacuation "has not been adequate to meet the requirements of Appendix E at the construction permit stage."[3]

Following the acceptance of this issue by the Licensing Board, the applicants moved for summary disposition of it under 10 CFR 2.749. The basis of the motion was that Hampton Beach is located outside of the low population zone (LPZ) for the Seabrook facility and that, as a matter of law, an applicant for a construction permit is not required to demonstrate the feasibility of evacuating any area beyond the LPZ boundary.[4] As authority for the latter proposition, the applicants relied upon our decisions in *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, RAI-73-5 331, 343 (May 18, 1973) and *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, RAI-74-12 957, 960 n. 6, 962-63 (December 24, 1974).[5]

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[1] New England Coalition on Nuclear Pollution (NECNP); Ms. Elizabeth Weinhold; and the State of New Hampshire.

[2] Appendix E is addressed generally to emergency plans for production and utilization facilities.

[3] See the Licensing Board's memorandum and order of July 19, 1974 in which the Board admitted the contention to the proceeding on the basis of this interpretation of its import. The contention had been variously stated in the intervention petitions (NECNP Contentions 3 and 19; Weinhold Contention 2; New Hampshire Contentions 2(f) and 2(g)). The Board's reconciliation of the differing versions was based in part upon the clarification which it had obtained at a prehearing conference.

[4] A similar assertion had been advanced by the applicants in opposing the admission of the evacuation contention as an issue in controversy. The Board had rejected the assertion in its July 19, 1974 memorandum and order.

[5] On April 25, 1975, this Board rendered another decision in *San Onofre 2 and 3.* ALAB-268, NRCI-75/4R 383. The applicants immediately brought this decision (particularly pp. 406-407) to the Licensing Board's attention as further support for their position.

The applicants' motion was opposed by both the three intervenors and the NRC staff. In their view, *Midland* and *San Onofre* are to be distinguished on the ground that the discussion therein regarding the evacuation of persons outside of the LPZ was solely in the context of 10 CFR Part 100, which establishes siting criteria for reactors. The Licensing Board was told that nothing in those decisions precluded an inquiry into whether, on the facts of this particular case, compliance with Appendix E to 10 CFR Part 50 necessitated a demonstration by the applicants of the feasibility[6] of evacuating areas beyond the LPZ boundary.

In its fifth prehearing conference order, LBP-75-28, NRCI-75/5 513, issued on May 1, 1975, the Board accepted this distinction and denied the motion for summary disposition of the evacuation issue. It also denied the applicants' oral motion, supported by the NRC staff, to refer its ruling to us under 10 CFR 2.730(f).[7] The Board pointed out that Section 2.730(f) provides for such a referral only in circumstances where, in the Board's judgment, "prompt [appellate] decision is necessary to prevent detriment to the public interest or unusual delay or expense." The Board concluded that these standards were not met here. It additionally observed that a referral would not serve any useful purpose. According to the Board, the commencement of evidentiary hearings on the radiological health and safety aspects is imminent and, therefore, the evidence with regard to the evacuation issue would likely be received before we could take action upon the referral.

Recognizing that the denial of neither motion is appealable as a matter of right,[8] the applicants nonetheless have called upon us to pass immediately upon the question whether litigation of the Hampton Beach evacuation issue is foreclosed as a matter of law. They have done so by filing a petition asking that we invoke 10 CFR 2.718(i) to direct the Licensing Board to certify that question to us.

None of the intervenors has filed a response to the petition. The NRC staff, however, opposes it. In the staff's view, this Board is authorized to entertain the petition but the applicants have not established an adequate foundation for the grant of it.

For the reasons hereinafter developed, we concur with the staff on both points.

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[6] See n. 15, *infra*.

[7] A like motion had been made and denied at the time the Board admitted the evacuation issue into controversy. See Licensing Board's memorandum and order of July 19, 1974, p. 5.

[8] Unless within the ambit of Section 2.714a of the Rules of Practice, the taking of an appeal from an interlocutory ruling of a licensing board is prohibited. Section 2.730(f). We construe this prohibition as applying to the refusal of a licensing board to refer an interlocutory ruling.

I

We undoubtedly have the power to direct the certification of legal issues raised in proceedings still pending before licensing boards. In so many words, Section 2.718(i) provides without qualification for the licensing-board certification of questions to the Commission "either in [that board's] discretion or *on direction of the Commission*" (emphasis supplied). And, equally explicitly, Section 2.785(b) of the Rules of Practice clothes us with the Commission's Section 2.718(i) authority.

In this regard, we think it of no moment here that the Licensing Board has already ruled on the question which the applicants wish to have certified. True enough, we noted some time ago that:

> Under the Rules of Practice, a certification involves the submission of a *legal issue* to a higher tribunal for its consideration, without a ruling having been made on that issue by the certifying body. In contrast, a referral involves the submission to the higher tribunal of a *ruling* which the inferior body has made; the purpose of the referral being to obtain a determination of the correctness of that ruling.

Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-152, RAI-73-10 816, 818 n. 6 (October 5, 1973). Consequently, as the Board below readily apprehended, had *it* decided to solicit our opinion on the correctness of its ruling on the evacuation question, a "referral" under Section 2.730(f) (rather than a "certification" under Section 2.718(i)) would have been the appropriate vehicle. But there is nothing in Section 2.718(i) or its history to suggest an intent to place limitations upon the right of the Commission (and thus of this Board) to have brought up to it for consideration *any* question raised before a licensing board which is thought deserving of early dispositive resolution. Beyond that, it would be wholly irrational to read Section 2.718(i) in such a manner that its availability for this purpose would be destroyed by the wholly fortuitous circumstance that the licensing board had already expressed its own views on the particular question. Indeed, if arising at all, the need to reach down for an issue is more likely to surface after, and not before, the Licensing Board has itself spoken on the issue.[9]

Nor do we perceive any legal obstacle in the path of a request being made by one of the parties that we utilize Section 2.718(i). On the face of it, such a request might appear to have some of the earmarks of an impermissible interlocutory appeal. There is, however, at least one significant difference:

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[9] The Commission appears to have at least implicitly endorsed this analysis. See *Niagara Mohawk Power Corp.* (Nine Mile Point, Unit No. 2), CLI-73-28, RAI-73-11 995 (November 6, 1973), in which the Commission reviewed and reversed on its own initiative an interlocutory ruling of a licensing board. Although it did not expressly so state, presumably the Commission took this step in accordance with Section 2.718(i).

unlike an appeal, a request for a Section 2.718(i) certification does not invoke our jurisdiction as a matter of right but, instead, seeks simply the exercise by us of a discretionary power. Moreover, if a party considers there to be reasons why in the specific circumstances at hand, resort should be made to that power, we should have the benefit of those reasons. We of course do not, as we cannot, monitor the progress of licensing board proceedings closely enough to enable us to make such determinations on our own initiative alone.[10]

We therefore conclude that the applicants were entitled to file the petition for certification and that the relief sought by it is within our authority to grant. Accordingly we now turn to whether the petition establishes a sufficient basis for our intervention at this time.

II

The general policy of the Commission does not favor the singling out of an issue for appellate examination during the continued pendency of the trial proceeding in which that issue came to the fore.[11] Enforcement of that policy has led us to reject a referral of a licensing board ruling made under Section 2.730(f) where, unlike the referring board, we did not perceive any sufficiently extraordinary circumstances to justify our involvement in the proceeding at an interlocutory stage. *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-116, RAI-73-4 258 (April 17 1973). There is even greater cause to be chary about reaching down for an issue at that stage where, as here, the Licensing Board has affirmatively declined upon request to refer that issue.

We believe, then, that, at the very minimum, a party asking that we invoke our Section 2.718(i) certification authority must establish that a referral would have been proper; *i.e.*, that, failing a certification, the public interest will suffer or unusual delay or expense will be encountered.[12] In this instance, the applicant has endeavored to make that showing. We are, however, in full accord with the conclusion of the Licensing Board that the showing is inadequate.

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[10] In *Nine Mile Point 2, supra,* no party had asked the Commission to review the interlocutory ruling there involved. The Commission's opinion reflects, however, that the ruling came to its attention by virtue of a brief filed in a judicial proceeding to which it was a party. See RAI-73-11 995 n. 1.

A similar policy governs federal judicial proceedings. *Cf.* 28 U.S.C. 1292(b); *Oskoian* v. *Canuel,* 264 F 2d 591, 594 (1st Cir. 1959); *Milbert* v. *Bison Laboratories,* 260 F 2d 431, 433-35 (3rd Cir. 1958) (en banc); *In re Heddendorf,* 263 F 2d 887, 888-89 (1st Cir. 1959); *Cardwell* v. *Chesapeake and Ohio Ry.,* 504 F 2d 444, 446 (6th Cir. 1974).

[11] Since, as will be seen, these applicants have not made this showing, we need not decide here whether, as the staff suggests, a more stringent standard must be satisfied in order o justify a Section 2.718(i) certification. It might be noted in passing, however, that Section 2.718(i) does not itself articulate any standard whatever. This is in marked contrast to Section 2.785(d)(1), which authorizes the certification *by an appeal board to the Commission* solely of "major or novel questions of policy, law or procedure" See

(Footnote continued on page 484.)

A. The applicants call our attention to *Boston Edison Co.* (Pilgrim Nuclear Generating Station, Unit 2), LBP-75-15, NRCI-75/4R 419 (April 2, 1975), in which a licensing board adhered to an earlier rejection in a construction permit proceeding of a contention which raised the question whether "workable" evacuation plans had to be developed for communities within a 40-mile radius of the facility (*i.e.*, for areas beyond the LPZ boundary).[13] Asserting the existence of conflict between that rejection and the action taken below on the evacuation issue presented in this case, the applicants urge that it should be resolved now.

We are not convinced that there is the claimed conflict. The applicants concede that, as we ourselves concluded in ALAB-269,[14] the *Pilgrim 2* evacuation contention was disallowed on grounds other than that unsuccessfully pressed upon the Licensing Board here. And our own examination of the *Pilgrim 2* record leaves us uncertain that the Licensing Board there had even focused upon whether, as a matter of law, an applicant never will be obliged to make provision for the evacuation of areas beyond the LPZ boundary.

But even had the *Pilgrim 2* Licensing Board reached the issue which the applicants here desire us to decide, it would scarcely have followed perforce that a direction that the issue be certified would have been in order. The applicants apparently read *Washington Public Power Supply System* (Nuclear Projects No. 1 and No. 4), ALAB-265, NRCI-75/4R 374, at n. 1 (April 15, 1975) as suggesting that all conflicts between licensing boards should be resolved just as soon as they arise, at least so long as there are litigants available who are desirous of obtaining that resolution. ALAB-265 dealt, however, with an authorized *appeal.* Had that appeal not been voluntarily withdrawn, we would have had to decide it. This in turn would have necessitated a selection between differing determinations of two licensing boards on the very same question. Giving due regard to its context, nothing said in ALAB-265 can properly be taken as implying that the *certification* mechanism is to be triggered automatically

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(Footnote 12 continued.)

Consolidated Edison Co. of New York (Indian Point Nuclear Generating Unit 3), ALAB-186, RAI-74-3 245, 248 (March 26, 1974). It is true that Section V(f)(4) of Appendix A to 10 CFR Part 2 sets forth guidelines for the exercise by a licensing board of *its* certification authority. But even assuming that those guidelines were intended to apply to a certification direction from an appeal board to a licensing board, we have previously reserved judgment on whether "the provisions of Appendix A have the same status and force as the Rules [of Practice] themselves". *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, RAI-74-11 857, 867 (November 21, 1974); reconsideration denied, ALAB-252, RAI-75-1 1175 (January 6, 1975); affirmed, CLI-75-1, NRCI-75/1 1 (January 27, 1975).

[13] An appeal was dismissed on procedural grounds. ALAB-269, NRCI-75/4R 411 (April 28, 1975).

[14] *Supra*, n. 13, NRCI-75/4R 413-414.

whenever, during the course of a proceeding, a licensing board has made an interlocutory, non-appealable pronouncement at possible variance with the previously expressed views of another board. Absent some special circumstance making immediate elimination of the decisional conflict imperative, the parties both can and should be left to the pursuit of those normal appellate remedies which become available to them once the initial decision (or some other appealable order) has been rendered.

B. The asserted conflict to one side, the applicants maintain that, unless the challenged ruling of the Licensing Board is promptly reviewed and reversed, applicants in general will be obliged to undertake "expensive studies . . . of evacuability of areas outside the LPZ." As we interpret it, the ruling below has no such necessary effect.

To this point, the Licensing Board has *not* decided that these applicants, let alone applicants for a construction permit in general, must demonstrate the feasibility of evacuating persons beyond the LPZ boundary.[15] What the Board has done is simply to allow the intervenors here to go to trial on their contention that, "considering the location and operation" of the Seabrook facility, the applicants will be obliged ultimately to fashion an evacuation plan for Hampton Beach and therefore must now establish the feasibility of doing so. The Board's action may well reflect an interpretation of the regulations at odds with that of the applicants. But by no means has the Board foreclosed the applicants from litigating at the threshold whether, on the facts of this case as they may be developed, there is a need to be concerned about the evacuation of Hampton Beach in the event of an emergency associated with the facility. Thus, as matters now stand, there is no way of telling whether the Licensing Board will require the applicants to demonstrate the feasibility of such evacuation. Nor do we currently know the extent to which any decision the Board might make on that question would affect applicants in cases involving different reactors to be sited at other, perhaps markedly dissimilar, locations.

Accordingly, the applicants have overstated the immediate impact upon them, and upon applicants generally, of the Licensing Board's ruling. What practical significance the ruling may have remains to be seen— and only when seen will a judgment be possible as to the range of its implications. For the present, this much is clear: neither the applicants nor their class is being subject to "unusual" expense. And insofar as "unusual" delay is concerned, we take official notice of the fact that the Licensing Board recently scheduled the commencement of the evidentiary radiological health and safety hearing for

[15] At the construction permit stage, of course, the most that an applicant ever need do is establish the feasibility of whatever protective measures (*e.g.* evacuation) must be employed in the event of an accident. Detailed emergency plans can await the operating license stage. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, *supra*, RAI-74-12 at 961.

May 27, 1975—which is almost at hand. A certification would therefore, if anything, cause rather than prevent delay.

In sum, there does not appear here to be any exceptional circumstance which, either in the furtherance of the public interest or to avoid the imposition of a patently unreasonable burden upon one of the litigants, dictates that we step into the case at this time. This being so, we are disinclined to depart from the usual practice, recognized by this agency and the courts alike,[16] of allowing a trial proceeding to run its course before entertaining complaints on the appellate level.

C. Nothing beyond what has already been said should be read into our determination not to accept the applicants' invitation to exercise our Section 2.718(i) authority. More particularly, it would be a decided mistake for a party to draw any inference whatever as to how we might rule on the evacuation issue posed by the applicant in the event that, in this or some other case, that issue should properly come before us. If and when that day arrives, we will decide whether our *Midland* and *San Onofre* decisions have the meaning attributed to them by the applicants and, if not, precisely what is the reach of those Commission regulations which are concerned with evacuation. At this juncture, for the reasons set forth above *and no others*, we are content to permit the proceeding below to go forward without our intervention.

Petition for order directing certification *denied.*

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Romayne M. Skrutski
Secretary to the Appeal Board

[16] See p. 483, *supra.*

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-272

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Michael C. Farrar, Chairman
Dr. John H. Buck, Member
Dr. Lawrence R. Quarles, Member

In the Matter of

Docket No. 50-271

VERMONT YANKEE NUCLEAR POWER CORPORATION

(Vermont Yankee Nuclear Power Station)

Messrs. John A. Ritsher and Thomas G. Dignan, Jr., Boston, Massachusetts, for the licensee, Vermont Yankee Nuclear Power Corporation.

Mr. Anthony Z. Roisman, Washington, D.C., for the appellant, New England Coalition on Nuclear Pollution.

Mr. David E. Kartalia for the NRC staff.

Upon appeal from Licensing Board's denial (in remand proceeding ordered by ALAB-245) of petition to intervene with respect to licensee's proposed change in fuel rod assembly, and from Board's denial of petitioners' request to amend the intervention petition (LBP-75-12), and upon petition for Appeal Board to reconsider its remand instructions, ASLAB finds that petitioners did not establish any genuine issue of material fact which would have required a hearing; that its remand instructions were proper and consistent with recently adopted Appendix I to 10 CFR Part 50; and that those instructions were correctly applied by the Licensing Board.

Order denying intervention and leave to amend intervention petition affirmed. Petition for reconsideration denied.

DECISION

May 22, 1975

The present phase of this proceeding grew out of the licensee's proposal to utilize a different type of fuel assembly in the core of its reactor, which first began operating in September 1972. The Licensing Board denied the petition of the New England Coalition on Nuclear Pollution to intervene with respect to that proposal. On NECNP's appeal, we directed the Licensing Board to take a second look at the intervention petition. The Board did so, and once more denied intervention. NECNP has again appealed.

We conclude that, on remand, the Licensing Board correctly analyzed the situation before it and properly applied our mandate. Additionally, we find unpersuasive NECNP's pending request that we reconsider the appropriateness of that mandate. Consequently, we affirm the denial of the intervention petition.

A

1. Some time ago, the staff proposed to permit the licensee to substitute fuel rods arranged in an 8 x 8 array for the 7 x 7 fuel assembly then in use. See 39 *F.R.* 24046 (June 28, 1974). That proposal prompted NECNP to petition for leave to intervene and to request a hearing. NECNP did not then intend to oppose the proposed change, for it agreed that such a change would be a beneficial one.[1] Instead, it asserted that, precisely because better performance was expected from the 8 x 8 fuel, it would be "practicable", within the meaning of 10 CFR 20.1(c), to limit radioactive emissions from the facility to lower levels than had previously been prescribed.[2]

The Licensing Board denied the petition, holding that there was not a sufficient nexus between the proposed change in fuel assemblies and the allegedly related changes in emission limitations proposed by NECNP. LBP-74-77, RAI-74-10 715. We vacated and remanded. ALAB-245, RAI-74-11 873. A majority of this Board opined that a change in fuel would not ordinarily provide any occasion for a change in radioactive emission limits. RAI-74-11 at 875-76.[3] But it appeared that an extraordinary factor might be

[1] In a proceeding involving a different reactor, an intervenor unsuccessfully attacked the merits of changing to 8 x 8 fuel. *Boston Edison Co.* (Pilgrim Unit 1), LBP-74-57, RAI-74-7 176, affirmed, ALAB-231, RAI-74-10 633.

[2] The question of compliance with the Commission's "as low as practicable" requirement was one of the issues considered during the operating license hearing. See ALAB-179, RAI-74-2 159, 164-67.

[3] As indicated in his separate opinion (RAI-74-11 at 878-79), the Board Chairman believed it unnecessary to reach that question at that time.

present in this case. For, as this entire Board agreed, it was not possible to determine on the existing record whether the staff had taken into account in setting the governing release limits the presence of the excessively leaking fuel then in use. RAI-74-11 at 876-77. Had the staff done so, we held, then the proposed fuel change would warrant a reexamination of release limits. Accordingly, we remanded the case to the Licensing Board with instructions that it first ascertain whether the existence of the leaking fuel had been a factor in the establishment of the existing release limits and then, using that as the criterion, pass again on NECNP's right to intervene. RAI-74-11 at 877.

2. We adhered to our ruling in the face of three petitions for reconsideration, two by the licensee and one by NECNP. See ALAB-246, RAI-74-12 933, and ALAB-250, RAI-74-12 990. After ALAB-246 was issued, NECNP requested the Licensing Board to allow it to amend its intervention petition to include an additional contention. Specifically, notwithstanding its earlier agreement that the 8 x 8 fuel represented an improvement over the existing fuel, NECNP sought to add the alternative contention that there was "inadequate evidence of the expected performance of 8 x 8 fuel rods" to support the conclusion that use of the fuel could be justified on health and safety grounds. As the sole basis for this new contention, NECNP pointed to the statement of the majority of this Board in ALAB-246 (RAI-74-12 at 934)[4] that "[a]t this point in the development of 8 x 8 technology it would be premature to attempt to establish different leakage rates for the two types of fuel. See ALAB-245, fn. 7."

On March 19, 1975, while the Licensing Board was considering the case, NECNP moved forward on a different front by filing another petition for reconsideration with us. It requested, in essence, that we reconsider our statement concerning the establishment of leakage rates, and alter our mandate to the Licensing Board, in light of certain proprietary information NECNP had just received from the fuel vendor.

3. Before we were able to rule on the petition for reconsideration, the Licensing Board decided the issue which had been remanded to it. LBP-75-12, NRCI-75/3 261 (March 24, 1975). Upon an analysis of the staff papers which had been submitted, that Board held unanimously that "the leakage characteristics of the particular fuel involved did not play a part" in the establishment of the existing emission limits. NRCI-75/3 at 263. This being true, it held (in a ruling from which the Licensing Board Chairman dissented)[5] that a proper reading of our mandate required that the original petition be denied. The Board also denied leave to amend the petition, the majority of that Board holding that, read in context, the statement in ALAB-246 concerning experience with 8 x 8 fuel did not furnish the basis for a contention that the safety of such fuel was

[4] The Board Chairman did not join in this statement, citing "the reasons which led [him] to file a concurring opinion in ALAB-245," *i.e.*, the lack of need to reach the question at that point. RAI-74-12 at 935; see fn. 3, *supra*.

[5] NRCI-75/3 at 264-67.

not established. NRCI-75/3 at 263-64. The Licensing Board Chairman was of a different view on this question. See NRCI-75/3 at 267.

B

We need say little more than that we endorse the well-reasoned opinion of the Licensing Board majority. That Board correctly interpreted our mandate and reached the only conclusion which could reasonably be drawn from the staff papers (which explain how the existing emission limitations came to be set). Contrary to NECNP's suggestion, there was no need to defer ruling on the petition until there had been an opportunity to cross-examine the authors of those papers. NECNP did not establish that there existed, with respect to the limited question which we had directed the Licensing Board to consider, any genuine issue of material fact which required that a hearing be convened. Nor do we perceive anything in the staff papers which suggests that any useful purpose might be served by conducting further proceedings.[6]

The Licensing Board properly refused to allow NECNP to amend its petition. That Board correctly appreciated the import of our statement concerning the extent of 8 x 8 experience insofar as it related to the setting of emission limitations which are "practicable" to achieve, and appropriately refused to permit the statement to be used out of context.

Finally, we are not persuaded by NECNP's still-pending petition for reconsideration that our mandate to the Board should have been, or should now be, recalled and amended. In this regard, we are influenced by the Commission's recent decision in the "as low as practicable" rulemaking proceeding. See 40 *F.R.* 19439 (May 5, 1975), adopting, *inter alia,* a new Appendix I to 10 CFR Part 50. To be sure, the numerical guides contained in Appendix I as thus adopted do not apply to the Vermont Yankee facility.[7] But it is instructive that the numerical guides do not vary according to the type of fuel assembly to be used in the different facilities to which they do apply. In this regard, the Commission's decision lends further support to our earlier rulings.

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[6] In holding that there is no reason here to question the accuracy of the staff's explanation for the action it took, we do not wish to be understood as approving the manner in which that action was taken. See ALAB-245, *supra,* RAI-74-11 at 877.

[7] The numerical guides apply only to plants for which a construction permit application was filed on or after January 2, 1971, the day the "as low as practicable" requirements embodied in 10 CFR 50.34a became effective. App. I, Sec. I and Sec. V.A. (40 *F.R.* at 19442-43). In contrast, Vermont Yankee, which like all other plants now operating has been covered not by 10 CFR 50.34a but by a similar requirement in 10 CFR 20.1(c), will be required to submit within one year certain information and plans which will be reviewed on a case-by-case basis. App. I, Sec. V.B (40 *F.R.* at 19443).

NECNP's petition for reconsideration is *denied;* the Licensing Board decision of March 24, 1975, is *affirmed.*

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-273

ATOMIC SAFETY AND LICENSING APPEAL BOARD

John B. Farmakides, Chairman
Dr. Lawrence R. Quarles, Member
Richard S. Salzman, Member

In the Matter of

PORTLAND GENERAL ELECTRIC COMPANY

(Pebble Springs Nuclear Plant, Units 1 and 2)

Docket Nos. 50-514
50-515

Mr. Warren Hastings, Portland, Oregon, for the applicant, Portland General Electric Company

Mr. Lloyd K. Marbet, Portland, Oregon, *pro se*, and on behalf of Coalition for Safe Power and Forelaws on Board, intervenors

Mr. Bernard M. Bordenick, for the Nuclear Regulatory Commission Staff

Upon appeals from Licensing Board's decision on intervention (LBP-75-21), ASLAB (1) affirms ruling insofar as it allowed intervention by two organizations, but reverses it insofar as it disallowed a *pro se* intervention by petitioner who was a member of and represented the two intervenor organizations, finding that the pleadings were essentially the same; (2) dismisses as premature, the appeal of the two organizations concerning Licensing Board's denial of certain of their contentions; and (3) orders consolidation of all three intervention petitions. Upon referral by Licensing Board pursuant to 10 CFR §2.704(c) of its denial of intervenors' motion to disqualify one of the board members, ASLAB affirms.

Decisions affirmed and reversed accordingly.

RULES OF PRACTICE: APPELLATE REVIEW

A licensing board's initial ruling on intervenors' contentions is an interlocutory decision, not immediately reviewable, so long as intervenors' status as a party is not affected by the ruling.

RULES OF PRACTICE: APPELLATE REVIEW

Appeal Board will not disturb a Licensing Board's conclusion that the requisite affected interest of a petitioner has been established unless it appears that such conclusion is irrational. *Prairie Island*, ALAB-107, RAI-73-3 at 193.

ATOMIC ENERGY ACT: SCOPE OF INTERESTS PROTECTED

The availability of a collateral remedy elsewhere does not preclude a party from requesting relief before the Commission; a licensing board has an obligation to consider all contentions properly raised before it.

MEMORANDUM AND ORDER

May 28, 1975

I

On April 24, 1975, following a special pre-hearing conference, the Licensing Board granted the petitions to intervene of the Coalition for Safe Power (CFSP) and Forelaws on Board (FOB), admitted two of their seven proposed contentions as matters in controversy in this case, and authorized Mr. Lloyd K. Marbet, an officer or member of both organizations,[1] to represent them in the proceeding, although Mr. Marbet is not a lawyer. The Board denied, however, Mr. Marbet's petition to intervene in an individual capacity for want of a sufficient showing of his personal interest in the proceeding, a showing required by Section 2.714 of the Commission's Rules of Practice (10 CFR §2.714).

All parties except the staff have appealed the Board's ruling. The applicant asserts that the petitions to intervene should all have been denied for failure to demonstrate the prerequisite interest; Mr. Marbet appeals on the ground that his individual *pro se* petition does contain a sufficient showing of interest and should have been granted; and CFSP and FOB (represented by Mr. Marbet) urge that the Board erred in not admitting all seven of their proposed contentions.

[1] A common petition to intervene was filed by Mr. Marbet on behalf of himself, CFSP and FOB.

The staff agrees with the Board's decision except as to the denial of Mr. Marbet's *pro se* petition; it now asserts that Mr. Marbet has met the requisite interest requirement of §2.714.

It is settled that a licensing board's initial ruling on intervenors' contentions is an interlocutory decision so long as the intervenors' status as a party is not affected by the ruling. *Boston Edison Company* (Pilgrim Nuclear Generating Station, Unit 2), ALAB-269, NRCI-75/4R 411 (April 28, 1975). Accordingly, the appeal of FOB and CFSP must be and hereby is *dismissed* as premature.

As to the issue of requisite interest, we have earlier stated:

> . . . we are not inclined to disturb a Licensing Board's conclusion that the requisite affected interest of a petitioner has been established unless it appears that that conclusion is irrational.

Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 & 2), ALAB-107, RAI-73-3 188, 193 (1973). In this instance, the Licensing Board searched at length to find the elements which it considered necessary for requisite interest; *viz.*, a showing that

> . . . (1) the entry of an order in the particular proceeding would cause actual injury to the person or group representing intervention, and (2) such injury is arguably within the scope of interests to be protected by the statutes governing the particular proceeding.[2]

This finding, as well as the particular circumstances of this case, which include the fact that intervenors are proceeding without benefit of counsel and apparently are established consumer groups whose legitimate interests in electric power matters in their area have been recognized in state proceedings, led us to affirm the Board's determination that the level of requisite interest required by §2.714 has been satisfied. In addition, the Licensing Board found the presence of at least one contention complying with the applicable requirements of §2.714. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 & 2) ALAB-107, RAI-73-3 188, 194 (1973). Thus, we are not persuaded that the Licensing Board acted irrationally in allowing those organizations to intervene.

By having thus resolved the issue of requisite interest, it should not be understood that we necessarily concur with the Board's apparent conclusion that being a customer of the applicant is, by itself, a sufficient showing of economic interest to justify intervention in all licensing proceedings. We reserve judgment on that issue for a more appropriate case.

We cannot, however, support the distinction drawn by the Board below between the requisite interests of CFSP and FOB on the one hand and those of Mr. Marbet, pleading *pro se*, on the other. If sufficient interest was found under

[2] Licensing Board's "Order of the Board Concerning Petitions to Intervene," dated April 24, 1975, LBP-75-21, NRCI-75/4R 446.

§2.714 to admit the two organizations represented by Mr. Marbet, we fail to see why Mr. Marbet does not possess an equal interest, since Mr. Marbet individually alleged essentially the same interest as that asserted on behalf of the two organizations he represents, and he appears to be the originator as well as author of the petitions before us. Accordingly, we reverse the Licensing Board's denial of petitioner Marbet's *pro se* petition to intervene and order that he be permitted to participate in this proceeding on his own behalf.

In view of the common petition to intervene filed by Mr. Marbet, on his own behalf, and on behalf of CFSP and FOB, and the similarity of issues of all three parties, we believe it would be appropriate for the Licensing Board to consolidate the three petitions, and require a single presentation for future proceedings unless, in the Board's judgment, there is good cause to the contrary.

In denying the applicant's appeal, we have not ignored its argument that the intervenors may also have an opportunity to protect their economic interests in proceedings before Oregon State officials. As the staff cogently points out in its reply, however, the availability of a collateral remedy elsewhere does not preclude a party from requesting relief before this Commission. The Licensing Board's obligation to consider contentions properly raised before it under the Atomic Energy Act and the National Environmental Policy Act is not excused because some other agency, federal or state, might also be able to afford relief. *Detroit Edison Company* (Greenwood Energy Center, Units 2 and 3), ALAB-247, RAI-74-12 936, 945-46 (1974); *Calvert Cliffs' Coord. Comm.* v. *AEC*, 449 F. 2d 1109, 1122-27 (D. C. Cir. 1971).

II

Also before us is intervenors' motion under Section 2.704(b) and (c) of the Rules of Practice, seeking, on grounds of bias, the disqualification of Dr. Walter H. Jordan as a member of the Licensing Board in this case. The Licensing Board denied the motion with an appropriate exposition of its reasons for doing so and, as required by Section 2.704(c) of the Rules, referred the matter for our review. For the reasons stated by the Licensing Board, we affirm the denial of the motion to disqualify Dr. Jordan. See *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), 4 AEC 555 (1971), and *Detroit Edison Company* (Greenwood Energy Center, Units 2 and 3), ALAB-255, RAI-74-9 379-80 (1974).

III

The orders of the Licensing Board are accordingly *affirmed* in part and *reversed* in part; the cause is remanded for further proceedings not inconsistent with this opinion.

Dr. Quarles concurs except that he would affirm the Licensing Board in denying the *pro se* petition to intervene of Mr. Marbet.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-274

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Michael C. Farrar, Chairman
Richard S. Salzman, Member
Dr. W. Reed Johnson, Member

In the Matter of

Docket No. 50-389

FLORIDA POWER & LIGHT COMPANY

(St. Lucie Nuclear Power Plant,
Unit No. 2)

Mr. Martin Harold Hodder, Miami, Florida, for the intervenors.

Upon intervenors' exception to partial initial decision (LBP-75-5), challenging the Licensing Board's authority to render such decisions, and upon a motion for a protective order against requiring briefing at this time of any other exception, ASLAB finds 10 CFR §2.761a as expressly authorizing the type of partial initial decision here involved and (in conjunction with 10 CFR §2.762) as requiring timely filing of all exceptions and briefs after such decision is rendered, unless the Appeal Board, in its discretion, permits a deferral of such filings.

Intervenors' exception and motion for a protective order denied; briefing time for remaining exceptions extended.

MEMORANDUM AND ORDER

May 28, 1975

Intervenors, a number of individuals residing near the reactor which the applicant proposes to construct, filed 45 exceptions to the Licensing Board's partial initial decision on environmental matters and site suitability (LBP-75-5, NRCI-75/2 101, as supplemented by LBP-75-25, NRCI-75/4R 463). Their first exception asserts that the rendering of "partial initial decisions" is unauthorized. Consequently, they say, there was no necessity for them to file any other

exceptions pending the final outcome of the proceeding; it follows, they assert, that although they elected to file other exceptions, there is no requirement that they brief them at this time.

We have now received from the intervenors (1) a timely brief in support of their first exception; (2) a motion for a "protective order" confirming that there exists no requirement that they brief their remaining 44 exceptions until after the Licensing Board's complete initial decision; and (3) a precautionary motion to toll or extend their briefing time pending our ruling on the first exception and the motion for a "protective order".

1. The intervenors' claim that partial initial decisions are unauthorized is based solely upon their reading of the Commission's Rules of Practice and not upon any statutory provisions. But whatever may have been true under prior regulations,[1] the Rules have for more than a year expressly authorized the type of partial initial decision handed down here. 10 CFR 2.761a, as added April 24, 1974 (39 *F.R.* 14506, 14508). It may be that the intervenors have overlooked this provision, for it does not appear in the 1974 edition of Volume 10 of the Code of Federal Regulations.[2]

The amended regulation also makes it clear, by indicating that the Rule relating to appeals (10 CFR 2.762) is applicable, that parties seeking to challenge a partial initial decision must file timely exceptions when that decision is rendered. In other words, under the Commission's Rules, parties are not entitled to withhold their exceptions until the Licensing Board has concluded the entire proceeding. Consequently, the intervenors' first exception, as well as the motion for a "protective order", must be denied.

We stress, however, that our decision treats only a claim that the Rules confer upon a party the *right* to defer filing exceptions or briefs until a "final" initial decision is forthcoming from the Licensing Board. Of course, in appropriate circumstances, we may exercise our discretion to permit the deferral of all or part of the appellate phase of a proceeding where there is good cause for doing so. In short, Section 2.761a does not deprive us of our authority (on request or *sua sponte*) either to defer the parties' filing of exceptions or briefs[3] or to defer our consideration of an appeal once briefs are filed. No suggestion that the circumstances of this case warrant such deferral, however, has been presented to us.

2. Upon consideration of the intervenors' motion to toll their briefing time pending our ruling, we are hereby extending the time for the briefing of their

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[1] See *Wisconsin Electric Power Co.* (Point Beach Unit 2), ALAB-86, 5 AEC 376, 377-78 (1972); see also 10 CFR Part 2, Appendix A, par. I(c) (1974 ed.).

[2] The 1974 edition of Volume 10, which until recently was the latest version available, reflects only those regulations promulgated prior to January 1, 1974. The 1975 revision of 10 CFR (just published) does, of course, contain the added provision.

[3] *Cf. Consumers Power Co.* (Midland Units 1 and 2), ALAB-235, RAI-74-10 645.

remaining 44 exceptions to June 13, 1975. The intervenors must file the required brief by that date unless they have previously submitted[4] and we have granted either (1) a motion for a further extension of their briefing time or (2) a motion to defer briefing their exceptions until after the Licensing Board completes its consideration of the entire case. A motion of either type must be accompanied by a showing of good cause for the granting of the relief sought and should indicate whether the other parties consent to its being granted.

Intervenors' exception No. 1 and motion for a protective order are *denied;* their motion for an extension of briefing time is *granted* and the brief is due June 13, 1975.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

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[4]See 10 CFR Part 2, Appendix A, par. IX(d) (3); see also *Louisiana Power and Light Company* (Waterford Unit 3), ALAB-117, RAI-73-4 261.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-27

ATOMIC SAFETY AND LICENSING BOARD

Edward Luton, Chairman
Emmeth A. Luebke, Member
Franklin C. Daiber, Member

In the Matter of

NORTHERN STATES POWER COMPANY

(Prairie Island Nuclear Generating Plant, Units 1 and 2)

Operating License

Docket Nos. 50-282
50-306

May 1, 1975

APPEARANCES

Gerald Charnoff, Esq., Jay E. Silberg, Esq., and Stephen L. Parker, Esq., of Shaw, Pittman, Potts & Trowbridge for the Applicant Northern States Power Company

Geoffrey P. Jarpe, Esq., of Maun, Hazel, Green, Hayes, Simon and Aretz

Mrs. Sandra S. Gardebring, Special Assistant Attorney General, State of Minnesota, and John Van DeNorth, Esq., Assistant Attorney General, State of Minnesota for the Intervenor Minnesota Pollution Control Agency

Steve J. Gadler, Intervenor Appearing in His Own Behalf

Joseph Gallo, Esq., Myron S. Kaufman, Esq., and Geoffrey P. Gitner, Esq., for the NRC Regulatory Staff

Upon reconsideration of issue of steam generator tube integrity, as directed by Appeal Board (ALAB-230), Licensing Board finds (1) adequate technical support for the selection of the all-volatile treatment of secondary side coolant water to control corrosion of such tubes; (2) proposed in-service inspection program is adequate for purposes of detecting and measuring corrosive effects on

the tubes; and (3) proposed revisions to the Technical Specifications are appropriate for inclusion in the facility licenses.

Amendment of Technical Specifications authorized.

SUPPLEMENTAL INITIAL DECISION

INTRODUCTION

In accordance with the instruction of the Appeal Board in ALAB-230, September 25, 1974, this Licensing Board has considered anew the issue of steam generator tube integrity in this proceeding. Our findings and conclusions regarding that issue are set forth in this Supplemental Initial Decision.

A. FINDINGS OF FACT

1. Water Treatment

The licensee presently utilizes an all-volatile water chemistry treatment (AVT) to prevent or minimize corrosion of steam generator tubing by the secondary coolant. This method of treatment involves the addition of volatile chemicals to the secondary coolant (Weeks, pp. 1-4, following Tr. 139).

Prior to October 15, 1974, the licensee had employed a phosphate water treatment method in the operation of Prairie Island Unit 1. This method required the addition of disodium and trisodium orthophosphates to the secondary coolant to prevent scale formation on tube surfaces. The phosphate additions were intended to control pH and react with hardness elements. [Unit 2 was never operated with phosphate chemistry (Tr. 196).] In late 1973 and the first half of 1974, steam generator tube inspections at operating plants using the phosphate treatment showed that, at the phosphate control range needed to prevent intergranular cracking, a localized thinning (or wastage) of the tubes was occurring. As a result of these findings, Prairie Island Unit 1 (and most other operating pressurized water reactors) was converted from phosphate water chemistry to AVT (NSP, pp. 1-6, following Tr. 306).

In converting Unit 1 from phosphate treatment to AVT, a sludge lancing procedure was used to remove sludge from the steam generators and to flush out soluble phosphates still present. The Unit 1 steam generator residual phosphate level has been monitored and found to be extremely low. Any phosphates remaining after conversion to AVT will either undergo redissolution as a result of power cycling and be removed by blowdown or be gradually converted to insoluble phosphates and sodium hydroxide. The sodium hydroxide (free caustic) created by this reaction could, if concentrated in a localized area, lead

to intergranular stress corrosion. This corrosion would take place almost immediately and the caustic would be quickly depleted. In the Prairie Island system, such concentration is considered to be highly unlikely and the severity of any resulting corrosion would be very slight. Once the remaining sodium phosphates are consumed, the potential for corrosion is arrested. The Staff's criteria for plugging defective tubes takes this type of corrosion into account (Weeks, pp. 15-16, following Tr. 139; Pawlicki, p. 4, following Tr. 142, Tr. 188-190, 327-328).

2. CONTROL OF CORROSION EFFECTS

Inconel-600 steam generator tubes of the type used in the Prairie Island facility are potentially subject to three types of corrosion: general corrosion, localized thinning (wastage) and localized intergranular stress corrosion cracking. General corrosion is a small amount of uniform thinning of the tube wall over the life of the plant and occurs even in an environment of high purity water. The rate at which general corrosion occurs is very low and the total amount of such corrosion will not exceed two to four mils over the life of the plant (Weeks, p. 14, following Tr. 139; Pawlicki, pp. 4, 6, following Tr. 142; Tr. 187; Knight, p. 4, following Tr. 135).

The wastage-type of corrosion is a wearing away of the Inconel-600 tubing in localized areas where phosphates precipitate due to poor circulation patterns. Wastage is directly attributable to phosphate treatment and has not been observed in the absence of phosphate water chemistry. Wastage-type corrosion has not been observed in all plants using phosphate treatment. The Prairie Island Unit 1 steam generator, when inspected by eddy current testing immediately prior to its conversion to AVT, showed no indications of corrosion or wastage, after having operated with phosphate treatment. Inspections have disclosed no wastage-type corrosion in PWR steam generators using AVT (Weeks, pp. 15-16, following Tr. 139; Pawlicki, p. 4, following Tr. 142; Sutton, p. 11, following Tr. 296).

The third type of corrosion to which the Prairie Island steam generator tubes are potentially subject is localized intergranular stress corrosion cracking, a corrosion between the grains of metal under the influence of high tensile stresses and some corroding agent in the secondary water. The most common cause of intergranular stress corrosion cracking is the presence of excessive impurities, particularly caustic, and their concentration in localized areas. If impurity levels in secondary side water are kept sufficiently low, no intergranular stress corrosion should occur. Since wastage corrosion is not anticipated with AVT and since general corrosion is insignificant over the forty-year plant life, we next address the question of control of intergranular stress corrosion cracking in an AVT environment (Weeks, pp. 11-21, following Tr. 139; NSP, pp. 3-4, following Tr. 306; Tr. 182-183, Tr. 249).

3. NEED FOR CONDENSATE DEMINERALIZATION

Intergranular stress corrosion cracking will not occur with high purity secondary water. The two methods used to achieve this purity are (1) condensate demineralization and (2) limiting the impurities by maintaining condenser integrity. The latter method is used at Prairie Island. Condensate demineralization is an acceptable method. Maintaining high purity secondary water without condensate demineralization is also feasible and acceptable. Experience at operating plants using AVT indicates that Inconel-600 steam generator tube integrity has been maintained both with and without use of condensate demineralization. Two plants, the "N" Reactor and Oconee Unit 1, have operated with AVT treatment and condensate demineralization for over one and one-half years. Eddy current examinations at these plants have disclosed no serious corrosion (Weeks, pp. 6-9, 19, 20, 23, following Tr. 139; Tr. 172, 175-180, 191-194, 203, 311).

Several plants have successfully operated for significant lengths of time with AVT and without condensate demineralization. The Maine Yankee facility has operated since its November 1972 startup using AVT without condensate demineralizers. Visual and eddy current inspections have disclosed no defects, despite some instances of significant condenser inleakage. At the Shippingport facility, steam generator chemistry was changed from phosphate to AVT in 1971. Although no eddy current inspections were performed subsequent to the change, no leaks have developed since that time and the corrosion rate after conversion appears to have been less than 7% per year. The Fort Calhoun plant has operated with AVT and no condensate demineralization since September 1973, following a brief period of operation with phosphate chemistry. The first tube inspection has yet to take place, and no definitive corrosion rate data are available. It is known that no tube leaks due to corrosion have occurred. West Germany's Obrigheim plant has been operating for seven years with AVT and no condensate demineralization. The only type of corrosion experienced at Obrigheim which might be applicable to Prairie Island was intergranular stress corrosion cracking found just above the tube sheet in the center of the tube bundle. Although complete information on impurity levels and condenser leakage experience at Obrigheim is not known, the corrosion rate was measured at 5% per year (Weeks, pp. 4, 5, 9-14, following Tr. 139; Tr. 173-174, 180-184, 203-204).

The reactor experience with AVT steam generator chemistry without condensate demineralization gives confidence that the Prairie Island steam generators can be operated without any significant corrosion. By keeping impurity levels at acceptable levels, reactors such as Maine Yankee and Shippingport have been able to avoid corrosion of steam generator tubing. The amount and concentration of impurities on the secondary water side of the condenser from water which could enter the steam generators through condenser

leaks is relatively low at Prairie Island. The licensee's program of condenser leakage control, including continuous measurement for impurities, blowdown, and repair when necessary, can limit impurities to levels which will not cause significant corrosion (Tr. 193-194, 204, 249, 309-312, 318, 325-327; NRC Exh. 1; Testimony of Weeks, following Tr. 139). The choice of installing condensate demineralizers is basically an economic decision resulting from a balancing of the cost of downtime needed to maintain condenser integrity against the cost of installing demineralizers (Tr. 311-312).[1]

4. PROPOSED TECHNICAL SPECIFICATION CHANGES

The following Technical Specification for reactor coolant system leakage has been proposed by the Staff and accepted by the licensee:

> If steam generator leakage between the primary coolant system and the secondary coolant system of a unit exceeds 1.0 gallon per minute, that unit shall be brought to a cold shutdown and an inservice steam generator tube inspection shall be performed. [Kintner Testimony, p. 2, following Tr. 118-119]

Other proposed changes to the Prairie Island Technical Specifications, which have also been accepted by the licensee, are summarized below:

a. The initial inservice inspection will be completed within twelve to twenty months after the baseline inspection (i.e., not later than May 1976).

b. Subsequent inservice inspections will be performed within the time intervals recommended in Regulatory Guide 1.83 (June 1974) provided, however, that a shorter interval will be required if the corrosion allowance determined from the first inservice inspections shows that a shorter time interval is required to maintain a tube wall thickness (25 mils) during the subsequent interval of plant operation.

c. Tubes will be plugged prior to resumption of plant operation if they contain:

(i) either a partially through-the-wall defect detected by eddy current inspection with the remaining wall thickness less than the sum of the minimum acceptable wall thickness (25 mils) and a corrosion allowance based on the localized corrosion rate found during the inspection, or

(ii) a through-the-wall crack detected during plant operation or during the water leakage test subsequent to tube plugging. The water leakage test is run prior to resumption of plant operation to verify that all leaking tubes have been properly plugged.

[1] By letter of March 20, 1975, the Applicant informed the Board of its decision to install full-flow condensate demineralization at Prairie Island. The Board does not consider that this decision requires the holding of additional hearings in this matter.

d. If, during the inspection, one or more tubes is found to have a defect that would have failed under the pressures associated with a loss of primary coolant or a loss of secondary coolant, the situation will be reported to the Staff in accordance with the facility license for resolution and approval of the proposed remedial action. [Kintner Testimony, pp. 2-4, following Tr. 118-119].

5. NORMAL OPERATING AND ACCIDENT CONDITIONS

The NRC Staff has calculated the criteria for minimum acceptable tube wall thickness necessary for safe operation of the facility in a conservative manner. In setting these criteria, consideration was given to the full range of normal operation and postulated accident conditions to which the facility could be subject. The design basis accidents, used by the Staff in its calculations, involve the theoretical development of the characteristic forces of accident loads to a conservatively high level, for the design and nature of the system. They encompass all smaller accidents and are therefore limiting (Tr. 201-202).

The wastage type of corrosion has not been observed with AVT. The type of defect which could potentially occur would be cracking due to intergranular stress corrosion. The proposed 1.0 gpm limit on steam generator leakage from the primary coolant system to the secondary coolant system will maintain an adequate margin of safety against failure due to loads imposed by design basis accidents. Leakage in excess of 1 gpm would require plant shutdown, eddy current inspection and plugging of the leaking tubes. A leak rate of 1 gpm corresponds to a through-wall crack of less than 0.6 inch in length. Steam generator tubes of the type used at Prairie Island having a through-wall crack 0.6 inch long have been shown to resist failure both under normal operating conditions and at pressures above those resulting from postulated steam-line break and loss-of-coolant accidents. The proposed 1.0 gpm leak rate limit provides an adequate margin to maintain the primary to secondary boundary under design basis accident conditions (Knight, pp. 13-17, following Tr. 135; Kintner, p. 5, following Tr. 269; Tr. 158-159, 162-164, 199-202, 273-274).

The proposed Technical Specifications provide additional protection through the establishment of a plugging criterion such that there is a minimum wall thickness sufficient to resist design basis accident forces and by the setting of an appropriate inspection interval. By conservatively maintaining a minimum wall thickness of 25 mils (one-half the thickness of the original tube wall), tube integrity under loss-of-coolant and steam-line break accident conditions is provided. Tests have shown that tubes with localized penetrations have a burst pressure more than 30% greater than tubes with uniform thinning to the same depth. Any tube found to have a defect which would result in less than 25 mils remaining tube wall prior to the next inspection (i.e., a defect plus an allowance

for corrosion assumed to occur prior to the next inspection), whether caused by cracking or wastage, would be plugged (Knight, pp. 2, 6-12, following Tr. 135; Tr. 150-151; 156; Kintner, p. 5, following Tr. 269).

6. STEAM GENERATOR TUBE SURVEILLANCE

Three methods for monitoring steam generator tube corrosion are to be employed at the Prairie Island plant. They are: (1) detection of primary-to-secondary leakage during operation; (2) primary system pressure tests following each refueling outage; (3) inservice inspection by eddy current testing (ECT) (Pawlicki, p. 1, following Tr. 142).

Primary-to-secondary leakage during plant operation is detected by radiation monitors on the steam generator blowdown. This method detects leakage as low as 0.1 gpm. Primary-to-secondary leakage is also detected by the continuous gas monitor on the steam jet air ejector, which has a sensitivity as low as 0.05 gpm. Thus, leakage from through-wall intergranular stress corrosion cracking or other causes is readily detectable at sufficiently low levels for the proposed Technical Specifications (Pawlicki, pp. 2-4, following Tr. 142; Kintner, p. 5, following Tr. 269; Tr. 274-275).

The second surveillance method, post-refueling pressure tests, can also detect leaks from through-wall stress cracks. All plants must perform a system leak test prior to post-refueling startup. These tests would provide additional assurance that tubes with through-wall or incipient through-wall cracks had been detected and plugged (Pawlicki, p. 3, following Tr. 142; Tr. 165-166).

The third method, inservice inspection program, is described in Regulatory Guide 1.83 entitled "Inservice Inspection of Pressurized Water Steam Generator Tubes" issued in June 1974. It provides a program of periodic inspections to monitor the integrity of steam generator tubes. The purpose of the inspections is early detection of any defect or deterioration, due to any cause, so that corrective measures can be taken to arrest further degradation and to make any necessary repairs in order to maintain the continuing integrity of the steam generator tube portion of the reactor coolant pressure boundary. The inservice inspection program covers all the major parameters needed for an effective program including inspection techniques, tube sample selection, inspection intervals, and acceptance limits and corrective measures (NRC Staff Exh. 2; Frank, pp. 1-8, following Tr. 220).

Eddy current testing (ECT) is a reliable and rapid means for inservice inspection of steam generator tubes. ECT is a standard method used throughout the world for such inspections and has been used to inspect steam generators in more than forty reactors. It is also widely used as a quality control tool in industry. By passing a coil through the steam generator tube and impressing an alternating current across the coil, local eddy currents are generated which tend to reduce the coil voltage. Flaws in the tube material produce changes in the

eddy currents, thereby producing changes in the coil voltage. By monitoring and recording these changes, defects can be detected and located. Calibration of eddy current sensors is accomplished by using standard defects machined or drilled into tubing material (Weeks, pp. 23-25, following Tr. 139; Frank, pp. 5-6, following Tr. 220; Tr. 222, 237, 242-243).

Eddy current testing will reveal the existence of defects which have penetrated 20% or more through the tube wall. Eddy current testing can detect and measure defects in tubes of greater than 20% tube wall penetration by various forms of corrosion with an error band for a single measurement of plus or minus 2-4%. The uncertainty level in determining the amount of penetration approaches ±10% at defect penetrations of 20%. It is reasonable to establish 20% as a detection limit. ECT will routinely indicate the existence of penetrations well below 20%, as low as perhaps 5%. While ECT cannot accurately measure the length of cracks less than perhaps a quarter inch long, it can determine that a crack of some length does exist. ECT has the capability to detect both intergranular stress corrosion cracking and wastage-type corrosion, although it may be difficult to differentiate between the two. The proposed Technical Specifications are based upon the assumption that the inspection could not determine whether a defect was a crack or an area of wastage (Weeks, pp. 73-76, following Tr. 139; Frank, pp. 5-8, following Tr. 220; Tr. 152-154, 240-241, 253-255).

ECT measurements have been shown to be conservative in ascertaining the degree of penetration. The vendor has physically measured penetration depths on thirty or more defected tubes which had been removed from operating reactors. A comparison with the ECT measurements of these tubes indicates that ECT overestimated actual penetration by 10-15%. A similar comparison on tubes removed from the Palisades Plant showed that ECT reported an average 12.7% deeper penetration than the physically measured penetration (Frank, p. 7, following Tr. 220).

Regulatory Guide 1.83 establishes a procedure for the selection of tubes to be inspected by ECT. For plants which had not started power operation (such as Prairie Island, Unit 2), 100% of the accessible tube area is inspected to establish the baseline condition of the steam generator tubing.[2] Subsequent inspections cover not less than 3% of the tubes. For plants which have been in operation, Regulatory guide 1.83 recommends a baseline inspection based on a 3% sampling, concentrating on areas where experience (or prior inspections) indicates the potential for corrosion problems. This technique would be expected to uncover a higher proportion of defects than the proportion in the entire tube bundle (Frank, pp. 2-4, following Tr. 220; Tr. 227-233).

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[2] The Regulatory Staff moved the Board on February 19, 1975, to supplement the record by receiving, as NRC Staff Exhibit 5, a report concerning eddy current inspections conducted at Prairie Island Unit 2. The motion is unopposed and the report, entitled "NRC Inspection Report", dated October 23, 1974, is received as NRC Staff Exhibit 5.

The baseline inspection for Unit 1 was performed on September 16-23, 1974, and the results have been reviewed by the Directorate of Regulatory Operations [the Directorate of Regulatory Operations is now the Office of Inspection and Enforcement of the Nuclear Regulatory Commission; see 40 *Fed. Reg.* 3520, 3521 (January 22, 1975)]. The number of tubes actually inspected substantially exceeded 3%. For instance, of approximately 3,300 tubes in one of the two steam generators, 936 of the tubes on the hot leg side were examined to the first support plate and 145 tubes were examined completely around the U-bend. On the cold leg side, 435 tubes were tested to the first support plate and 34 completely around the U-bend. The tube selection was biased in favor of those areas where ECT indications and corrosion defects had occurred in other Westinghouse steam generators. In future inspections, selection of tubes for ECT will similarly be weighted toward such areas, as updated by more recent results. The inspection disclosed no indications of corrosion or wall thinning. The Unit 1 inspection thus provides a baseline against which future inspections may be compared and also demonstrates that no significant corrosion or wastage occurred during operation of Unit 1 with phosphate chemistry (Sutton, pp. 7-11, following Tr. 296; Frank, p. 3, following Tr. 220; Tr. 213-214, 307-309, 330-332).

7. INTERVAL BETWEEN INSPECTIONS

Once a baseline inservice inspection has been performed, follow-on inspections are scheduled to be performed regularly at intervals of no less than twelve months or greater than twenty months in the proposed Technical Specifications. The Specifications set a minimum inspection interval of twelve months so that if corrosion is in fact occurring, it will be observed. The twenty-month interval is double the inspection frequency of forty months which is applicable to other portions of the reactor coolant pressure boundary for nuclear plants inservice inspections according to ASME Code, Section XI. The inspection interval may be of short duration or for a period longer than twenty months depending on the corrosion rate observed at operating nuclear power reactors. If two consecutive inspections show no tube degradation, the inspection interval would be extended to forty months, the frequency established for other portions of the reactor coolant pressure boundary (Frank, pp. 3-5, 10, following Tr. 220; Tr. 233-236; Pawlicki, p. 9, following Tr. 142).

8. TUBE PLUGGING CRITERION

Regulatory Guide 1.83 requires the plugging of steam generator tubes with unacceptable defects. The Staff presently develops a definition of "unacceptable defects" on a case-by-case basis. It is not generally defined because of the lack of similarity between plants, systems, and conditions. A minimum acceptable tube wall thickness which must be maintained during the service life of the tube is

established. An additional thickness is then added for a corrosion allowance which is determined to be the upper bound of predicted corrosion during the interval to the next inservice inspection. Any defect that reduces the remaining tube wall thickness to less than the sum of the minimum acceptable tube wall thickness plus the upper bound corrosion allowance is designated an unacceptable defect and must be corrected by plugging the tube at both ends (Knight, pp. 1-2, following Tr. 135; Tr. 144).

The minimum acceptable tube wall thickness was established as .025 inch, using the principles outlined in Regulatory Guide 1.83. In establishing the minimum acceptable tube wall thickness, the NRC Staff assumed that, in addition to the margins necessary to assure that tube integrity would be maintained if a loss-of-coolant accident or a steam-line break is postulated, margins should also exist to assure that three requirements would be fulfilled; namely: (1) tubes with unacceptable defects would not be stressed during the full range of normal reactor operation beyond the elastic range of the tube material, (2) the factor of safety against failure by bursting under normal operating conditions is not less than three at any tube location where defects have been detected, and (3) crack-type defects that could lead to tube rupture either during normal operation or under postulated accident conditions would not be acceptable (Knight, pp. 7-8, following Tr. 135).

Meeting requirement no. 1 provides that, during normal operation, the maximum stress in a degraded tube will not exceed the yield stress for the tube material; and, therefore, tube failure due to cumulative effects of the service stresses does not occur. Requirement no. 2 provides that, during normal operation, the margin between the maximum internal pressure to be contained by the tubes and the pressure that would be required to burst the tubes will enable them to withstand three times the pressure that is exerted on the tube wall. This is the same as the margin that must be maintained for all other components of the reactor coolant system. Meeting requirement no. 3 provides that no crack-type defect will be tolerated that could result in loss-of-tube integrity by rapid growth or tearing along the crack length during normal operation or under loads associated with a postulated loss-of-coolant accident or steam-line break. The Applicant's vendor has performed experiments on tube failure due to crack propagation. These have shown that under simulated accident conditions, crack-like defects form bulges which in effect amount to a restriction on the ability of a crack to grow and cause complete disruption of a tube (Tr. 150; Knight, p. 9, following Tr. 135).

A corrosion allowance is developed for the purpose of achieving reasonable assurance that unacceptable tube defects, as defined by the tube plugging criterion, do not develop between inservice inspection intervals. Based on operating experience for nuclear power reactors which use AVT, the corrosion allowance or rate for the facility is, as a conservative calculation, three mils per year. The corrosion rate of three mils per year supersedes prior staff estimates of

1% and 2.7% per month and is based on a more extensive review of operating experience. The greater corrosion rate assumed by the Staff in establishing an initial, interim inspection interval of seven months was based upon a maximum wastage corrosion rate experienced with phosphate chemistry. As discussed earlier, wastage-type corrosion has never been observed in steam generators using AVT. The Obrigheim facility had a measured corrosion rate of 5% per year, with an unknown impurity level, while Shippingport appears to have had a corrosion rate of less than 7%. The 5-7% could be as much as three times greater before tube wall penetration reached 50% within the maximum inspection interval, even assuming that the tubes started with defects having 20% through-wall penetration (Weeks, pp. 5-7, 14, 20-22, following Tr. 39; Pawlicki, pp. 7-10, following Tr. 142; Tr. 270-271).

9. FUTURE INSERVICE INSPECTIONS

Inspections of the steam generators at several facilities are scheduled to be performed (Frank, p. 16, following Tr. 220). These additional inspections may or may not confirm present expectations for a satisfactory secondary-side water treatment method at the Prairie Island plant. In the event that they do not, the Board notes that the Staff will take corrective action with respect to the Prairie Island operation, including appropriate and prompt revision of the technical specifications or shutting down the plant, if necessary (Tr. 290-291).

B. CONCLUSIONS

Based on the evidence adduced in this proceeding, the Board finds that the Applicant and Staff have provided adequate technical support for the selection of the all-volatile treatment of secondary side coolant water to control corrosion of the steam generator tubes at the Prairie Island facility. There has been satisfactory operating experience both with and without demineralization. Steam generator and condenser leakage is measured during reactor operation. The Board directs the Staff, through its Office of Inspection and Enforcement, to give particular emphasis to the monitoring of these surveillance results at the Prairie Island plant.

The Board finds that the inservice inspection program described in Regulatory Guide 1.83, proposed to be employed at the facilities, is adequate for purposes of detecting and measuring corrosion effects on the steam generator tubes, and that the eddy current testing can detect and measure tube defects as required. The proposed revisions to the Technical Specifications for the facility will adequately protect the integrity of the steam generator tubes against forces associated with postulated loss-of-coolant accidents, steam-line breaks, and accidents of a lesser severity.

The Board finds that the proposed revisions to the Technical Specifications of the facility (Kintner, following Tr. 269) are appropriate for inclusion in the facility licenses. It is to be recognized that these requirements may be modified, based on information from the second inservice inspection and from the numerous steam generator inspections planned at other plants.

ORDER

Based on the Licensing Board's findings and conclusions and pursuant to the Atomic Energy Act, as amended, and the Nuclear Regulatory Commission's Regulations, IT IS ORDERED that the Director of Nuclear Reactor Regulation is authorized to amend the Technical Specifications for the Prairie Island Nuclear Generating Plant consistent with the terms of this Supplemental Initial Decision. IT IS FURTHER ORDERED, in accordance with Sections 2.760, 2.762, 2.764, 2.785 and 2.786 of the Nuclear Regulatory Commission's Regulations, that this Supplemental Initial Decision shall be effective immediately and shall constitute the final action of the Nuclear Regulatory Commission forty-five days after its date, subject to any review pursuant to the Nuclear Regulatory Commission's Regulations. Exceptions to this Supplemental Initial Decision may be filed by any party within seven days after service of this Supplemental Initial Decision. A brief in support of the exceptions shall be filed within fifteen days thereafter (twenty days in the case of the Staff). Within fifteen days of the filing and service of the brief of the appellant (twenty days in the case of the Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

It is so ORDERED.

THE ATOMIC SAFETY AND LICENSING BOARD

Emmeth A. Luebke, Member

Edward Luton, Chairman

Dated at Bethesda, Maryland,
this 1st day of May, 1975.

NOTE: Dr. Franklin C. Daiber did not participate in this decision.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-28

ATOMIC SAFETY AND LICENSING BOARD

Daniel M. Head, Chairman
Dr. Marvin M. Mann, Member
Dr. Ernest O. Salo, Member

In the Matter of

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*

(Seabrook Station, Units 1 and 2)

Docket Nos. 50-443
50-444

May 1, 1975

In fifth prehearing conference order, Licensing Board: (1) denies applicant's motion for summary disposition of the issue of evacuation of Hampton Beach (outside the LPZ) and its motion for referral of such ruling to the Commission; (2) denies as an improper responsive pleading applicant's motion to strike certain responses to its motion for summary disposition or, in the alternative, for summary disposition on the issue of population center distance and LPZ (10 CFR §2.730(a)); and (3) rules on several scheduling and discovery matters.

LPZ: EVACUATION

The definition of LPZ in 10 CFR §100.3(b) does not as a matter of law preclude consideration of evacuation of areas outside the LPZ as part of emergency plans under Appendix E to 10 CFR Part 50, if in fact such evacuation plans can be shown to be needed based upon facts of the particular proceeding; Appeal Board rulings in *San Onofre* (ALAB-248) and *Midland* (ALAB-123) stand for proposition that to meet site criteria of Part 100 an applicant must show the evacuability of the LPZ, and do not set forth an inflexible rule placing a limitation on the requirements for emergency plans in Appendix E.

RULES OF PRACTICE: REFERRAL OF RULING TO COMMISSION

A Board may refer a ruling to the Commission if, in its judgment, a prompt decision is necessary to prevent detriment to the public interest or unusual delay or expense.

PREHEARING CONFERENCE ORDER NO. 5

The Fifth Prehearing Conference in the above-captioned proceeding was held by the Atomic Safety and Licensing Board (the Board) on April 16, 1975 in Nashua, New Hampshire. As a result of that prehearing conference, the Board makes the following rulings:

1. The Intervenor, New England Coalition on Nuclear Pollution (NECNP), has filed Interrogatories to Applicant – Set No. 4, which contained two interrogatories relating to financial qualifications and need for power. The Applicant objected to these two interrogatories and filed a motion for a protective order in connection therewith. NECNP then filed a cross motion to compel discovery. The Board heard oral argument on these issues and resolved them as follows. With regard to the motion for a protective order and the motion to compel discovery, the Board granted each motion in part and denied each motion in part. These rulings were based upon the Board's resolution of the Applicants' objections to the two interrogatories.

Regarding the first interrogatory, which actually was a request for production of material, the Board overruled the Applicants' objection since the material sought could lead to evidence that would be relevant and admissible at the evidentiary hearing. Accordingly, the Board required the Applicant to produce a copy of all material submitted to the Atomic Energy Commission in the 1968 application for a construction permit at the Seabrook site regarding the financial qualifications of Public Service Company of New Hampshire.

Regarding the Applicants' objection to the second interrogatory, which again was a request for production of material, the Board sustained that objection. The request contained in that interrogatory was for a copy of a report allegedly made by the National Economic Research Associates, Inc. (NERA) regarding the demand for electricity. In its objection the Applicant indicated that no such NERA report exists and that the only document available was a draft of question and answer testimony which might be used in connection with the evidentiary hearing. In view of the form of this information, the Board denied the request for production of the draft information since it appeared to be in the form of trial preparation material of counsel. The Board, however, indicated that the substantive information that might be contained in any study performed by NERA could be secured by NECNP through the use of interrogatories or appropriate discovery methods.

2. The Board next considered the Applicants' motion for summary disposition of the issue of evacuation of Hampton Beach. Three Intervenors had raised this issue, NECNP, Ms. Elizabeth Weinhold, and the State of New Hampshire. Each of these three Intervenors opposed the Applicants' motion for summary disposition, as did the U. S. Nuclear Regulatory Commission's Staff (the Staff).

In addition, the Applicants filed a motion to strike portions of the responses to its motion for summary disposition or, in the alternative, to grant summary

disposition on the issue of the population center distance and the low population zone. Replies were filed by the aforementioned Intervenors and the Staff, all of whom opposed the granting of this second motion.

The Board dealt with the motion to strike or, in the alternative, for summary disposition on the population center distance and low population zone first. A review of this motion shows that it does not raise any new matter outside the scope of the issues to be determined in the motion for summary disposition on the evacuation of Hampton Beach. Accordingly, the motion appeared to be a responsive pleading not permitted under 10 CFR 2.730(a). The Board, therefore, denied the motion. However, it should be noted that the matters raised by the motion and the responses thereto were taken into account in the Board's deliberation on the motion for summary disposition on the evacuation of Hampton Beach.

Following extensive argument, the Board took the motion for summary disposition of the issue of evacuation of Hampton Beach under advisement. The Board's analysis and disposition of this motion follow.

Initially, the evacuation plan issue was raised by the following contentions: contention 2 of Ms. Weinhold; contentions 2 (f) and (g) of New Hampshire; and contentions 3 and 19 of NECNP. The Board's ruling interpreting these contentions and admitting them as an issue in controversy is set out in the Board's Memorandum and Order issued July 19, 1974. The rationale for the Board's ruling in this regard is contained in detail in the aforementioned Memorandum and Order which is incorporated by reference herein.

At the outset it is of value to reiterate the contention as interpreted and admitted as an issue by the Board. The contention asserts:

> (1) that, considering the location and operation of the Seabrook facility, the Applicant should formulate, as part of its emergency plans under 10 CFR Part 50, Appendix E, an evacuation plan for Hampton Beach; and (2) that, if an evacuation plan is needed, consideration by the Applicant of evacuation of Hampton Beach has not been adequate to meet the requirements of Appendix E at the construction permit stage.

Basically, the Applicants' argument remains unchanged from the position it had previously taken regarding the contentions. The Applicant asserts that the Commission's regulations do not require the Applicant to formulate an evacuation plan for any area outside the "low population zone" (LPZ) as defined in 10 CFR 100.3(b). The Applicant argues that Hampton Beach is outside the LPZ and that, as a matter of law, the Applicant does not have to provide an evacuation plan for Hampton Beach. To support this argument, Applicant now primarily relies upon two Atomic Safety and Licensing Appeal Board (Appeal Board) decisions. The first is the recent Appeal Board decision in *Southern California Edison Co., et al. (San Onofre Nuclear Generating Station,*

Units 2 & 3), ALAB-248, RAI-74-12, 957 (December 24, 1974),[1] and the second is *Consumers Power Company (Midland Plant, Units 1 & 2),* ALAB-123, RAI-73-5, 331 (May 18, 1973). The Applicant points to the language in *San Onofre* indicating that, in that case, a reduction in the size of the LPZ will make it unnecessary to evaluate persons in areas formerly within but now outside that zone (RAI-74-12 at pp. 962-963) and to a footnote stating that there is no requirement for evacuation of San Clemente residents not located within the LPZ (RAI-73-12 at p. 960, fn. 6). The authority cited in the footnote in *San Onofre* is the statement in *Midland* that the regulations require a showing of the possibility of evacuation only from the LPZ (RAI-73-5 at p. 343). The authority cited by the Appeal Board in Midland for this proposition is 10 CFR 100.3.

The three Intervenors involved and the Staff argue that the *San Onofre* and *Midland* decisions can be distinguished and limited to the facts in those particular cases, as opposed to standing for a general proposition that a licensing Board is precluded under any circumstances from considering evacuation of areas outside the LPZ as an issue. The Staff argues that the question in *San Onofre* and *Midland* was compliance with the site requirements in 10 CFR Part 100 and that the Applicants' construction of the language in those two decisions leads them to the unwarranted conclusion that consideration of the need for evacuation plans beyond the LPZ must be excluded as a matter of law. The Staff asserts that the evacuation issue in the present proceedings raises a question of compliance with Appendix E to 10 CFR Part 50, which is a separate issue from determining compliance with Part 100.

The Board concurs that the primary issue in *San Onofre* and *Midland* was compliance with the siting criteria in Part 100 and not the adequacy of evacuation plans that might be required to comply with Appendix E to 10 CFR Part 50. It should be noted that the authority relied upon for the statements in *San Onofre* and *Midland* on evacuation is 10 CFR 100.3. A review of Section 100.3 shows that the pertinent portion thereof is subsection (b). An analysis of that subsection indicates that it neither prescribes nor precludes any requirements with regard to evacuation plans under Appendix E. Subsection (b) is merely a definition of the LPZ which in explanation notes evacuation as an example. The pertinent language in subsection (b) is as follows:

> Whether a specific number of people can, *for example, be evacuated* from a specific area, or instructed to take shelter on a timely basis will depend on many factors such as location, number and size of highways, scope and extent of advance planning, and actual distribution of residents within the area. [Emphasis added.]

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[1] Also, Applicant has called the Board's attention to an even more recent Appeal Board decision in *San Onofre,* ALAB-268, NRCI-75/4 383, issued April 25, 1975. In pertinent part that decision elaborates on the Appeal Board's ruling in ALAB-248 on the San Onofre LPZ. However, a review of ALAB-268 reveals nothing which would cause this Board to change its resolution herein of the Motion for Summary Disposition.

In the Board's view, the definition of LPZ in Section 100.3(b) cannot be used to support a general rule excluding consideration of evacuation as part of emergency plans under Appendix E for areas outside the LPZ if in fact such evacuation plans can be shown to be needed based upon the facts of the particular proceeding. The Board construes the Appeal Board determinations in *Midland* and *San Onofre* as standing for the proposition that to meet the site criteria of Part 100 an Applicant must show the evacuability of the LPZ.

It is also significant to note that case-by-case flexibility is recognized in Part 100 itself which in Section 100.1(b) provides that:

> Insufficient experience has been accumulated to permit the writing of detailed standards that would provide a quantitative correlation of all factors significant to the question of acceptability of reactor sites .... Any Applicant who believes that factors other than those set forth in the guide should be considered by the Commission will be expected to demonstrate the applicability and significance of such factors.

Where the Part 100 siting criteria are themselves so flexible, the Board considers that it would be unwarranted to interpret Appeal Board rulings dealing with compliance with Part 100 in individual cases as setting forth an inflexible rule placing a limitation on the requirements of the emergency plans provided for in Appendix E to 10 CFR Part 50.

In view of the above, the Board hereby reaffirms the ruling made in its Memorandum and Order of July 10, 1974 and denies the Applicants' Motion for Summary Disposition.

3. In addition, at the Fifth Prehearing Conference there was a request that the Board refer its ruling on the Motion for Summary Disposition to the Commission. To do so the Board would have to take action as set out in 10 CFR 2.730(f) which provides that a Board may refer a ruling to the Commission if, in its judgment, a prompt decision is necessary to prevent detriment to the public interest or unusual delay or expense. Neither the Applicant nor the Staff, who support referral to the Commission, have shown any detriment to the public interest or unusual delay and expense that would warrant certification of this issue to the Commission. Further, because of the imminence of the start of the evidentiary hearing on health and safety matters, including the evacuation issue, the evidence with regard to evacuation would probably have been received before the Appeal Board could act upon any referral. In view of this, the Board sees no useful purpose in referring the matter. Accordingly, the oral motion for referral to the Commission is denied.

4. The Board entertained discussion from the parties regarding the status of the hearing before the Environmental Protection Agency (EPA) relating to the cooling water system. It was elicited that a preliminary determination permitting once-through cooling had been made by EPA and that determination is now pending before the New Hampshire Water Supply and Pollution Control

Commission for consideration of whether to issue the certificate required under Section 401 of the Federal Water and Pollution Control Act Amendments of 1972, (FWPCA), 33 U.S.C. 1251 *et seq.* It also appears that the earliest the 401 certification could issue is late May or early June 1975, and that then there is an opportunity for a further hearing. Until the issue regarding the 401 certification has been resolved on a more definitive basis, the Board considers that it would be unwarranted to schedule an evidentiary hearing on environmental matters.

5. The Board solicited from counsel their views with regard to the initiation of the evidentiary hearing. All parties appeared agreeable to starting the evidentiary hearing on health and safety issues during the latter part of May. In view of this, the Board will by separate notice and order schedule an evidentiary hearing on the issues arising under the Atomic Energy Act of 1954 as amended, 42 U.S.C. 2011 *et seq.*, as specified in the Commission's "Notice of Hearing on Application for Construction Permit" dated July 31, 1973 (38 *FR* 21519). This evidentiary hearing will begin on or about May 27, 1975.

6. The Board also heard discussion on restrictions on discovery in view of the imminence of the evidentiary hearing. In light of the extended time that has already been available for discovery in this proceeding, the Board is hereby requiring that any further discovery be initiated on or before May 12, 1975 and that responses to that discovery be filed on or before May 20, 1975.[2]

7. Further, as indicated on the record at the Fifth Prehearing Conference, that Prehearing Conference constitutes the prehearing conference required by 10 CFR 2.752 and this Prehearing Conference Order constitutes the order required by that Section.

BY ORDER OF THE ATOMIC SAFETY AND LICENSING BOARD

Daniel M. Head, Chairman

Dated at Bethesda, Maryland
this 1st day of May 1975.

[2] The Board will entertain any motion to reopen discovery on any unresolved issues relating to the facility's cooling water system if future developments with regard to the 316(a) exception and the 401 certification can be shown to warrant such action or if other good cause be shown for reopening such discovery.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-29

ATOMIC SAFETY AND LICENSING BOARD

Marshall E. Miller, Chairman
John M. Frysiak, Member
Sidney G. Kingsley, Member

In the Matter of

NEW YORK STATE ELECTRIC & GAS CORPORATION

(Somerset Nuclear Station, Units 1 and 2)

Docket No. P-507-A

May 9, 1975

Upon petitions for intervention and requests for a hearing on the antitrust aspects of construction-permit application, Licensing Board finds petitions premature since all contentions were directed toward a not-yet-formed organization which might acquire this facility or become a co-applicant, but which is not presently a party to the proceeding.

Petitions denied, without prejudice to their renewal if and when appropriate.

MEMORANDUM AND ORDER

New York State Electric and Gas Corporation has applied for a construction permit for a nuclear power plant to be located in the town of Somerset, Niagara County, New York.

Pursuant to section 105c.(1) of the Atomic Energy Act of 1954, 42 USC 105(c)(1), the Atomic Energy Commission, the predecessor of the Nuclear Regulatory Commission, requested of the Attorney General his advice as to the antitrust aspects of the application, as a preliminary to a finding by the Commission as to whether the activities under the license would create or maintain a situation inconsistent with the antitrust laws as specified in subsection 105a., 42 USC 105(a).

The Attorney General's advice to the Commission was that the activities proposed under the license would not create or maintain a situation inconsistent

with the antitrust laws. A notice to that effect was published in the *Federal Register* on January 13, 1975, 40 FR 2463. The notice provided that any person whose interest may be affected by this proceeding might file a petition for leave to intervene and request a hearing on the antitrust aspects of the application.

Two petitions were filed for leave to intervene and for a hearing on the antitrust aspects of the application: one by an unincorporated association identified as the Citizens Energy Council of Western New York, and another by an unincorporated association identified as Alliance of Consumers and Taxpayers of Niagara (ACT). The two petitions, which are in many respects identical in their allegations, address themselves to the question whether the applicant, or another corporation not yet organized and to be known as Empire State Power Resources, Inc. (ESPRI), is to be exempted from the provisions of the Public Utility Holding Company Act of 1935. 15 USC 79; see 15 USC 79c.

The petition of the Citizens Energy Council presents two contentions. The first is that, contrary to 15 USCA 79j.(b)(1), the financing arrangements for ESPRI tend toward interlocking relations or the concentration of control detrimental to the public interest. In support of this contention, the Council argues that ESPRI is not as a matter of law exempt from the provisions of the Holding Company Act and cannot be exempt; that municipal power distribution systems are denied proprietary access to ESPRI power on a basis comparable to that of the sponsors; and that this pattern is unlawful and detrimental to the public interest. The second contention is that the ESPRI financing arrangements are contrary to the same statutory provision in that these arrangements would facilitate the financing and construction of capital intensive nuclear reactors which are unsafe, unreliable, too costly and therefore contrary to the public interest. The contentions in the petition of ACT are the same as the contentions of the Council and are supported by the same arguments. In each petition it is asserted that the petitioners have direct financial, property, and other interests in Niagara County, and are consumers of electricity furnished by the applicant.

Both petitions as a whole, notwithstanding allegations as to health and safety and other considerations which are beyond the scope of the present proceeding, appear simply to amount to a claim that the proposed project is and should be subject to the provisions of the Public Utility Holding Act.

The applicant opposes the two petitions to intervene on the grounds that the nature and extent of each petitioner's interest in the proceeding is such that their contentions relate to matters outside the jurisdiction of this agency, and that the contentions of the petitions, dealing with the merits of public power generation for distribution and with the safety, reliability and cost of nuclear reactors generally, are outside of the scope of the proceeding.

The Nuclear Regulatory Commission staff opposes both petitions on the ground that the petitions to intervene are directed not against the applicant but against ESPRI, the new corporation to be formed, and takes the position that the petitions to intervene are therefore premature and should be denied without

prejudice. The staff observes that it has refrained from taking any "formal position", and expresses its lack of agreement that the contentions of the intervenors are adequate within the meaning of 10 CFR 2.714, or that those contentions are within the zone of interests protected by section 105c. of the Atomic Energy Act, 42 USC 105(c), or that they are stated with sufficient particularity to satisfy 10 CFR 2.714. The staff also refrains from taking a position as to the sufficiency of the petitions with regard to potential adverse effects on the petitioners, who are not actual or potential competitors of the applicant but its customers, and with regard to the allegations of the financial, property, and other interests of the petitioners. Finally, the staff takes no position as to the relevancy to this proceeding of the petitioners' reliance on the provisions of the Public Utility Holding Company Act, 15 USC 79j., which are directed to the Securities and Exchange Commission.

It appears that ESPRI is a corporation organized by the applicant and six other New York electric utilities with the purpose that ESPRI will finance, own and operate about sixteen electric generating stations in that state, and that authority to organize such a consortium is now being sought from the Public Service Commission of New York. It is intended that the applicant and others not now subject to the Public Utility Holding Company Act will apply to the Securities and Exchange Commission for exemptions under that Act, and that some of them which are now subject to that statute as exempt holding companies be allowed to participate in ESPRI. It is also intended that the applicant, ESPRI and others not now subject to the Holding Company Act will apply to the Federal Power Commission for approval of the acquisition by ESPRI of public utility assets including, among others, the proposed plant which is the subject of this proceeding.

The language of the two petitions as to the Holding Company Act, particularly 15 USC 79j.(b)(1), and the argument that these corporations should not be exempt from the Holding Company Act, is phrased in such terms that it would appear to be directed to the Securities and Exchange Commission rather than this agency.

ACT has expressed the intention to intervene merely in order to preserve its options. It has asked that its contentions shall not "become operative" until the completion of proceedings before the New York State Public Service Commission and the entry of ESPRI into this proceeding as an applicant, and has said that if ESPRI does not become the applicant, it expects that its petition for intervention in this proceeding will be "withdrawn".[1] The Council has expressed a similar view, and has asked that its petition for intervention "be withdrawn" if the project is disapproved by the Public Service Commission or if ESPRI does

[1] Petition to intervene, Part IV.

not become the applicant here.[2] It is thus apparent that each of the two petitioners for leave to intervene does not wish to pursue its antitrust contentions unless and until ESPRI becomes the applicant or, at any rate, becomes a party to this proceeding.

It is apparent that any antitrust conditions which might be imposed by this agency should be imposed only if the parties affected, the sponsoring utilities or ESPRI as their representative, were parties in this proceeding. The record before us does not disclose, and it is probably impossible at present to predict, the exact shape of the proposed transaction as it may be approved by the New York State Public Service Commission, the Securities and Exchange Commission, and the Federal Power Commission. Moreover, the municipalities which might be the beneficiaries of any antitrust conditions which might be imposed here have not been completely identified. It would therefore be premature to undertake to resolve antitrust considerations until ESPRI becomes a party to this proceeding as a co-applicant, a successor to the present applicant, or otherwise.

In view of our disposition of these petitions for intervention, it is unnecessary to decide, and we express no opinion, as to the adequacy of the compliance of the petitions with 10 CFR 2.714, nor do we express any opinion as to the validity of the contentions in the petitions.

It is therefore ORDERED that the petitions of the Citizens Energy Council of Western New York and of the Alliance of Consumers and Taxpayers of Niagara are denied, with leave to renew them on the completion of the pending proceedings before the New York Public Service Commission or the entry of Empire State Power Resources, Inc. into this proceeding as a party.

THE ATOMIC SAFETY AND LICENSING BOARD
Designated to Rule on Petitions for Intervention

John M. Frysiak, Member

Sidney G. Kingsley, Member

Marshall E. Miller, Chairman

Dated at Bethesda, Maryland,
this 9th day of May, 1975.

[2] Petition to intervene, p. 4.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-275

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
Dr. W. Reed Johnson, Member

In the Matter of

NORTHERN STATES POWER COMPANY

(Prairie Island Nuclear Generating Plant, Units 1 and 2)

Docket Nos. 50-282
50-306

Upon *sua sponte* review of the Licensing Board's supplemental initial decision (LBP-75-27) and the underlying record in the remand proceeding ordered by ALAB-230, Appeal Board tentatively concludes that all facets of the remanded issue (steam generator tube integrity) have not yet been satisfactorily explored.

Parties directed to file memoranda on specified issues.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

A Licensing Board is fully empowered to reopen the record of a proceeding and to call for a further evidentiary hearing where further relevant facts have come to its attention subsequent to the close of the hearing, but prior to the rendering of its decision.

OPERATING LICENSE HEARINGS: HEALTH & SAFETY ISSUES

Where important safety questions arise after the close of a hearing, a Licensing Board has the duty to discuss and resolve all such issues in rendering its decision.

MEMORANDUM AND ORDER

June 2, 1975

In ALAB-230, RAI-74-9 458 (September 25, 1974), we remanded this operating license proceeding to the Licensing Board for the taking of further

evidence on one of the issues which had been placed into controversy by a party to the proceeding.[1] We now have before us that Board's May 1, 1975 supplemental initial decision[2] which is based upon the evidentiary hearing conducted on remand. No exceptions to that decision have been filed. Nonetheless, for the reasons set forth below, our preliminary *sua sponte* examination of the decision and the underlying record suggests that all facets of the remanded issue still may not have been satisfactorily explored. Before giving effect to this tentative conclusion, we are asking for the views of the parties on (1) this Board's analysis of the supplemental initial decision; and (2) whether, should the decision be found incomplete on the basis of that analysis, a need will arise for a further expansion of the record.

A. The issue here involved had its derivation in contention III-14 of one of the intervenors, the Minnesota Pollution Control Agency (MPCA). It was there asserted that, as a result of corrosion or manufacturing defects, there might be a thinning of the Inconel-600 steam generator tubes to be used in the Prairie Island facility, with the further consequence that those tubes might fail during the course of a loss-of-coolant accident (LOCA). In its initial decision authorizing the issuance of operating licenses for the facility,[3] the Licensing Board found that the problems encountered in the past in the operation of similar steam generators had been occasioned by cracks in the tubing brought about by intergranular stress corrosion. The Board further found that such corrosion could be controlled by the water treatment procedure which the applicant proposed to employ for the secondary coolant system—a procedure calling for the addition of sodium phosphates to the steam generator feedwater to eliminate the presence of free caustic in the generator.

Although the MPCA did not challenge these findings on its appeal from the initial decision,[4] we were, of course, required to review them on our own initiative. Before that review could be completed, however, we were advised by the applicant that it was abandoning the sodium phosphate treatment method.

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[1] Subsequent to the rendition of ALAB-230, we considered and disposed of all other issues raised by the Licensing Board's initial decision and the exceptions which had been filed thereto. See ALAB-244, RAI-74-11 857 (November 21, 1974). Reconsideration of one limited aspect of ALAB-244 was denied in ALAB-252, RAI-75-1 1175 (January 6, 1975). The Commission, in turn, affirmed that denial. CLI-75-1, NRCI-75/1 1 (January 27,1975).

[2] LBP-75-27, NRCI-75/5 501.

[3] LBP-74-17, RAI-74-4 487 (April 2, 1974).

[4] As is reflected by ALAB-244, *supra*, none of the exceptions filed by MPCA was directed to the steam generator tube integrity issue. Another intervenor in the proceeding, Steve J. Gadler, touched upon the subject in one of his exceptions but did not discuss it in his supporting brief.

In lieu thereof, it proposed to employ an alternative procedure which is now identified as the "all-volatile" treatment (AVT) method.[5]

Since the AVT method had received very little consideration at the evidentiary hearing, we concluded that a remand was required for a further examination of it. While leaving it to the Licensing Board "to shape the precise outer perimeter of the inquiry", we identified certain matters which we thought "perforce will have to be considered in depth in order to provide the complete record which that Board (and we) will need to enable the reaching of an informed judgment":

> (1) The extent to which the zero solids treatment can be expected to control not merely intergranular stress corrosion but, in addition, all other types of corrosion which might adversely affect tube integrity. One facet of this inquiry should be whether, to be effective, this treatment method must entail a capability for secondary system demineralization.
>
> (2) The extent to which the criteria used to determine the acceptability of a steam generator tube, degraded as a result of postulated or measured cracking, thinning, wastage or wear, encompass the entire spectrum of accidents (*including LOCAs and feedwater and steam line breaks*). And relevant to this inquiry will be an identification and consideration of all forces which might reasonably be expected to accompany each specific type of accident which is to be analyzed.

RAI-74-9 at 462; emphasis supplied.

Beyond the question of the appropriate water treatment method, the Licensing Board was instructed to probe the acceptability of certain proposed changes in the Prairie Island Technical Specifications which related to the establishment of an in-service inspection program for the steam generator tubes. These changes had been submitted to the staff, subsequent to the rendition of the initial decision, in compliance with a staff directive that the applicant take measures to implement Regulatory Guide 1.83[6], issued in June 1974. The Licensing Board was told that in making this probe

> . . . it should give particular attention to the measurement sensitivity of any in-service inspection technique which is to be utilized to measure tube

[5] The AVT method was referred to in the initial decision and in ALAB-230 as the "zero solids" treatment (ZST) method. Now, however, ZST has taken on a different meaning. AVT is currently used to identify the procedure whereby all-volatile chemicals are added to the feedwater for the purpose of neutralizing the impurities in that water. ZST has reference to a treatment procedure which, in common with the AVT method, employs all-volatile chemicals but, in addition, involves the passage of a major portion of the secondary flow through a condensate demineralizer. The demineralization process is designed to remove, insofar as possible, the solids in the water on the secondary side. Where just the AVT (or the phosphate) method is employed, the solids are removed only as part of the steam generator blowdown.

[6] "Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes."

> wall degradation. According to Section C.2.b of Regulatory Guide 1.83, "[t]he inspection equipment should provide a sensitivity that will detect defects with a penetration of *20%* or more of the minimum allowable as-manufactured tube wall thickness" (emphasis supplied). Although the Guide indicates that the eddy current technique will meet this standard, a staff witness testified below that the technique has a detection limit of "35-50% of the wall thickness." ... A resolution of this apparent inconsistency will, of course, be necessary before any definitive conclusion is reached on the acceptability of the eddy current technique as a means for ascertaining tube integrity.

Id. at *462-63.*

The evidentiary hearing on remand was held at the end of January, at which witnesses for the applicant and the staff testified and were cross-examined by other parties as well as by the Licensing Board. Following the closing of the hearing, but prior to the rendition of the supplemental initial decision, the Licensing Board was apprised of two developments having a direct bearing upon the issue before it:

(1) On March 7, the staff furnished the Licensing Board and the other parties with a copy of its February 28, 1975 "Notification of an Incident or Occurrence" (hereafter "incident report") in connection with the Point Beach 1 facility—a Westinghouse pressurized water reactor located at Two Rivers, Wisconsin, which the record reveals has a steam generator design similar to that of Prairie Island (Kintner Supplemental Testimony, following Tr. 1878, at p. 1; Weeks following Tr. 1878, at p. 7).[7] The incident report reflected that on the night of February 26-27, 1975, while the facility was operating in a steady-state at 100% of full-rated power, a severe failure of a steam generator tube occurred. This was followed by a primary-to-secondary leakage flow of approximately 125 gpm. It was further stated in the report that the tubes had been last inspected in April-May 1974 and that in November 1974 the phosphate treatment method had been supplanted by the AVT method.

Approximately two weeks later, on March 20, the staff furnished the Board and the other parties with copies of the licensee's March 8 report of the event. In doing so the staff indicated that any additional information it might obtain would be supplied to the Board.[8]

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[7] "Tr." refers to the transcript of the original hearing; "Supp. Tr." refers to the transcript of the remand hearing.

[8] In fact, nothing further was supplied to the Licensing Board prior to May 1. On May 16, well after the supplemental initial decision was handed down, the staff provided the Licensing Board and the other parties with copies of the report of a staff inspection of Point Beach 1 which had been conducted on March 13-14. Since jurisdiction over the proceeding transferred back to our Board after the supplemental initial decision had issued, the May 16 submission should have been made to us instead.

(2) By letter of March 20, 1975, the Licensing Board was informed by applicant's counsel of his client's decision to install full-flow condensate demineralizers, thus in effect shifting from the AVT to the ZST method (see n. 5, *supra*).

Without even a passing reference to the Point Beach 1 incident, the Licensing Board determined in its supplemental initial decision both (1) that the AVT method will provide an acceptable means of controlling steam generator tube corrosion; and (2) that the surveillance program described in Regulatory Guide 1.83, and to be incorporated in the Prairie Island facility's Technical Specifications, is sufficient to determine the state of the steam generator tubes, including their ability to withstand accident forces. On the first score, the Board did take note of the applicant's recent decision to install condensate demineralizers. In the Board's opinion, however, there was no necessity from a safety standpoint to take this additional step. Rather, according to the Board, the choice between the AVT (no demineralization) and the ZST (with demineralization) methods comes down to "basically an economic decision resulting from a balancing of the cost of downtime needed to maintain condenser integrity against the cost of installing demineralizers". NRCI-75/5 at 505.

B. Our concern respecting the Licensing Board's supplemental initial decision, and the underlying record, lies in four areas: (1) the Board's conclusion that the installation of condensate demineralizers is not required; (2) the sufficiency of the eddy current inspection technique and of conductivity monitoring of the secondary system water, from the standpoint of providing reasonable assurance of tube integrity during the interval between eddy current surveys; (3) the analysis used for determining whether a particular steam generator tube must be plugged as defective; and (4) the relevance of the steam generator tube failure at Point Beach 1 from the standpoint of both (a) the preferable water treatment method and (b) the means employed to detect defective tubes prior to their rupture.

1. *Condensate demineralization.* As we have noted, the Licensing Board concluded that it need not direct the applicant to install condensate demineralizers. This conclusion appears to have rested on the Board's finding that "[t]here has been satisfactory operating experience both with and without demineralization". NRCI-75/5 at 511.

We regard this finding to be of questionable validity. It appears from the testimony of the principal staff witness that, in the case of two facilities using full condensate demineralization (Oconee 1 and Hanford "N"), no significant tube degradation had been encountered after some years of operation (Weeks, following Supp. Tr. 139, at pp. 7-9). On the other hand, some plants employing the AVT method (*i.e.*, no demineralization) were found, after comparable periods of operation, to have experienced serious tube corrosion (*id.*, pp. 11-13;

see also inspection report referred to in n. 8, *supra*). This testimony was not contradicted by any of the other evidence adduced at the remand hearing.

Given this state of the record, the question naturally arises as to why the applicant should not be required to install condensate demineralizers. In this connection, we point again to the fact that the applicant has affirmatively indicated that it intends voluntarily to take this measure.[9]

2. *Sufficiency of eddy current surveillance and conductivity monitoring.* Despite the favorable past experience enjoyed by facilities employing condensate demineralization, an order directing this applicant now to install demineralization equipment would not relieve all concern regarding possible tube failures. For one thing, Prairie Island 1 has already been operating for approximately twelve months without demineralization; during a part of this period, the phosphate treatment was in use. Secondly, it will be approximately three additional years before the demineralizers will be installed and in operation (Supp. Tr. 311-12). Finally, it is of course much too early to determine whether, even if utilized from the very inception of plant operation, demineralizers will prevent the development of any significant corrosion over the entire 40 year life-span of a facility.

Thus, even should we eventually order demineralization here, there would remain the need to focus upon the sufficiency of the proposed means for assuring tube integrity. They are: (a) the periodic inspection of the steam generator tubes by the eddy current technique; and (b) between eddy current surveys, continuous conductivity monitoring of the secondary system water for the purpose of detecting impurities such as those that may enter the system as a result of condenser leakage.

Insofar as the Licensing Board's endorsement of the eddy current technique (which is incorporated in Regulatory Guide 1.83) is concerned, we can agree that the record indicates that that technique will detect most significant flaws—provided that use is made of the best appropriate equipment, as well as of highly trained operators (Frank, Supplemental Testimony, following Supp. Tr. 220, at p. 8; Regulatory Guide 1.83, Section C.h.).[10] It is much less certain, however, that the specifications of Regulatory Guide 1.83 are adequate to insure that such equipment will be utilized.

Over the course of the last two years, eddy current sensitivity has been materially improved (Weeks, *supra*, at p. 25). This improvement has resulted from the introduction of proper centering devices for the detector coils, the use

[9] Under the Licensing Board's supplemental initial decision, the applicant remains free, of course, to change its mind respecting installation of demineralizers. Only by the imposition of an appropriate license condition would the applicant become obligated to carry through on its voluntary undertaking.

[10] The evidence does suggest that, although the eddy current technique can detect both cracks and wastage, it will not always be clear even to an experienced operator precisely which of the two types of flaws is involved.

of two frequencies and the development of automated equipment (*ibid.*). Although Regulatory Guide 1.83 incorporates by reference the detailed standards for training and qualifying operators, the only criterion established by the Guide for the equipment itself is that it should consist of (a) an internal sensing probe; (b) a two-channel eddy current tester; (c) a viewing oscilloscope; (d) a conventional two-channel strip chart recorder; and (e) a magnetic tape data recorder. This does not appear to be a sufficiently precise description of what is required for effective eddy current testing. For example, the general stipulation that an internal sensing probe be utilized does not oblige the operator to make certain that the probe is properly centered throughout the entire length of the tube being inspected.

Turning to the matter of the Licensing Board's further endorsement of continuous conductivity monitoring as a means for detecting impurities in the secondary system, the record does provide support for the conclusion that such monitoring will indicate condenser leakage (the major source of those impurities) (Supp. Tr. 168). But we have found nothing in the evidence to suggest that conductivity monitoring will also bring to light accumulations of solid impurities in the steam generator. Since the record shows (Weeks, *supra*, at pp. 3, 17) that solid impurities may concentrate in certain parts of the steam generator[11], and cause tube corrosion, it may well be that the conductivity monitoring should be supplemented by periodic chemical monitoring of the generator blowdown.

3. *Tube plugging criteria.* Quite properly, Regulatory Guide 1.83 emphasizes at the very outset the importance of the maintenance of the integrity of steam generator tubes under accident conditions:

> Failure of the steam generator tubes, which constitute a portion of the reactor coolant pressure boundary, resulting from stress corrosion cracking, wastage, or fretting could permit release of radioactive materials to the secondary coolant system. *In addition, the weakening of these tubes due to the same processes could, in the event of a loss-of-coolant accident (LOCA), result in failure of tubes and release of the energy in the secondary system into the containment.* This guide describes a method acceptable to the Regulatory staff for implementing these criteria with regard to minimizing the probability and consequences of massive propagation of steam generator tube failures *in the event of a LOCA, steam line break accident, or similar incident* through the early detection of defects and deterioration by periodic inservice inspection. This guide applies only to pressurized water reactors

[11] This conclusion has been recently buttressed by the results of an inspection of another facility. See n. 15, *infra*. It is true that the sludge found in that inspection consisted basically of phosphates, presumably derived from employment of the phosphate water treatment method. But the Weeks' testimony (at pp. 17, 20) suggests that impurities having other origins may accumulate even where the AVT method is employed.

(PWRs). The Advisory Committee on Reactor Safeguards has been consulted concerning this guide and has concurred in the regulatory position. [Footnote omitted; emphasis supplied].

Notwithstanding the allusion to several different types of accident which might produce extraordinary stresses in these tubes, the Guide proceeds to focus solely upon the LOCA. In Section B, entitled *Discussion,* the Guide states:

> The design criteria used to establish the structural integrity of the steam generator tubing should include definition of the minimum allowable tube wall thickness which can sustain the pressure and thermal loading resulting from the worst postulated LOCA in combination with a safe shutdown earthquake (SSE). [Footnote omitted].

And in Section C, entitled *Regulatory Position,* the staff defines an "unacceptable defect" as

> one which would result in not satisfying the calculated acceptable minimum tube wall thickness that can sustain a LOCA in combination with a safe shutdown earthquake.

This limited focus gives rise to a reasonable doubt as to whether the Guide itself establishes adequate criteria for determining if a particular tube should remain in service or, instead, be plugged.[12] Specifically, should not the definition of "unacceptable defect" have included other accident sequences as well? In this connection, a LOCA results in external static forces on the steam generator tube, tending to crush the tubes (Knight, following Supp. Tr. 135, at pp. 16-17). Conversely, a steam or feedwater line break results in internal static loading of the tubes, tending to cause them to burst (*id.* at p. 11). Each of the possible accident sequences also occasions dynamic loading of the tubes (*id.* at p. 12; FSAR, p. 4.3-6 (Amendment 11, September 20, 1971)).

Insofar as this particular facility is concerned, a staff witness testified at the remand hearing that the minimum acceptable tube wall thickness would be 0.025 inches (Knight, *supra,* at p. 7). This testimony was largely based upon a Westinghouse report[13] which presents the results of dynamic analyses for Westinghouse Model D steam generator tubes under the influence of combined LOCA and SSE forces. It appears, however, that the witness also took account

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[12] As a result of being properly plugged, a tube is no longer accessible to the primary water. Consequently, its wall no longer forms a portion of the primary system pressure boundary.

[13] WCAP-7832, "The Evaluation of Steam Generator Tube, Tube Sheet and Divider Plate under Combined LOCA plus SSE Conditions", Westinghouse Proprietary Class 3. This report, while often referred to in the course of the remand hearing, was apparently not admitted into evidence.

of an analysis of the purely static forces resulting from a steam line break—even though he was not required to do so by Regulatory Guide 1.83 (*id.* at p. 11).

Prairie Island has 51 Series, rather than Model D, steam generators. The staff asserted below that the results of the analyses for the Model D generator were applicable as well to the 51 Series model. Although the assertion derives some support from introductory statements in the Westinghouse report, we are unable to reach necessarily the same conclusion from our examination of the document in its entirety.

In any event, we note again that the report did not analyze accident sequences other than the LOCA-SSE combination. The staff witnesses' analysis of the *static* forces associated with a steam line break cannot be regarded as providing a complete supplementation of the Westinghouse analyses. For we find no basis in the record for neglecting consideration of *dynamic* forces attendant to secondary system breaks.

4. We have earlier taken note of the Point Beach 1 tube failure incident occurring at the end of February 1975, which was brought to the Licensing Board's attention by the staff two months prior to the rendition of the supplemental initial decision. The possible present significance of this incident seems plain in view of the fact that (a) Point Beach 1 and Prairie Island 1 are Westinghouse PWRs with a similar steam generator design; (b) both reactors commenced operation with the phosphate treatment method and converted to the AVT method last fall; and (c) the Point Beach 1 tubes were inspected by the eddy current technique approximately nine months before the rupture occurred.[14] Nonetheless, insofar as we can determine on the basis of what is before us, the Licensing Board entirely ignored the incident. It did not ask the parties for their comments (let alone await a full report of the staff's investigation before placing its stamp of approval upon both the AVT method and the eddy current surveillance technique). Nor, assuming that it thought the incident to be irrelevant to the disposition of the remanded tube integrity issues, did the Board favor either the parties or ourselves with an explanation as to the reasons underlying that conclusion.

True enough, the evidentiary hearing on remand had been concluded a month before the Point Beach 1 rupture took place. But this consideration, standing alone, cannot serve to justify the Board's seeming disregard of the incident. There was nothing to preclude the Board from reopening the record to receive formally the staff's initial report or any other document bearing upon the event. Moreover, if found to be advisable either before or after obtaining the views of the parties on the significance of the tube rupture, the Board would

[14] The Point Beach 1 incident takes on even greater potential significance in view of the testimony at the remand hearing respecting an occurrence at the Beznau 2 facility in Switzerland. Although the eddy current inspections had disclosed only "minor" flaws, when the tubes were removed for visual inspection noticeable thinning was discovered (Supp. Tr. 319).

have been fully empowered to call for a further evidentiary hearing to delve into the matter more deeply. Needless to say, important safety questions such as those at bar should be decided with reference to all relevant information available to the Board at the time of decision—and not just those facts which fortuitously may have been developed or have come to the Board's attention by some arbitrary earlier date.

In any event, we are now requesting the parties to discuss the Point Beach 1 incident, to the extent possible on the basis of the documentation which has been made available to them by the staff. We desire the parties to focus particularly on the disclosures in the staff report of its March 13-14 inspection (see n. 8, *supra*) that (a) 157 of the Point Beach 1 steam generator tubes were so defective that plugging was necessary; and (b) the majority of those plugged tubes had a defect (either cracking or thinning) which penetrated more than 60% of the original tube wall thickness—indeed many were in "the 80-89% bracket" (Report, p. 5).[15]

C. The parties are to file memoranda with this Board *on or before July 3, 1975.* These memoranda shall discuss each of the four points set forth above in terms of the existing record (or, in the case of the fourth point, the documentation already made available by the staff in connection with the Point Beach 1 tube failure incident). With respect to each point, the memoranda should consider whether a reopening of the record is necessary, and, if so, whether the reopening must be accompanied by the convening of an additional evidentiary hearing. All conclusions in this regard should be supported by a detailed statement of reasons.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

[15] The parties should also consider the other revelations in the report. For example, despite repeated lancing of the Point Beach 1 steam generators, three to four inches of phosphate sludge remained therein. Further lancing after the incident succeeded in removing more than a ton of wet sludge. We have previously noted the corrosive effect of solid impurities.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-276

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
Dr. W. Reed Johnson, Member

In the Matter of

GEORGIA POWER COMPANY

(Alvin W. Vogtle Nuclear Plant,
Units 1 and 2)

Docket Nos. 50-424
50-425

Upon *sua sponte* review of initial decision authorizing construction permits for facilities the construction of which has been suspended for over nine months pending licensee's determination of possible deferment or cancellation, Appeal Board requests parties to file memoranda on specific questions concerning the appropriateness of suspending or conditioning the outstanding permits.

ATOMIC ENERGY ACT: TERMINATION DATE OF CONSTRUCTION PERMITS

A construction permit applicant is under no legal compulsion to make use of the permit if and when it is obtained, nor to observe any precise schedule for the commencement and progress of the authorized work. Although the Atomic Energy Act and the Commission's regulations require a permit to state the earliest and latest dates for completion of construction, they do not require imposition of an outer limit for completion of any specific phase of the total project.

ATOMIC ENERGY ACT: TERMINATION DATE OF CONSTRUCTION PERMITS

The imposition by the Atomic Energy Act of a construction deadline which may be extended only for good cause suggests that Congress did not envisage a regulatory scheme whereby an applicant could apply for and obtain a permit and then hold it in reserve until such time, if ever, as it seemed to make good business sense to use it.

MEMORANDUM AND ORDER

June 11, 1975

On June 27, 1974, the Licensing Board rendered its initial decision,[1] authorizing the issuance of permits to the Georgia Power Company for the construction of the Alvin W. Vogtle Nuclear Plant, Units 1, 2, 3, and 4.[2] Pursuant to that authorization, on the following day the AEC regulatory staff (now NRC staff) issued construction permits for each of the four Vogtle Units (Nos. CPPR-108 through CPPR-111).

Before the Licensing Board the proceeding had been uncontested. No exceptions to the initial decision were filed with us. Consequently, in accordance with our customary practice, we embarked upon a *sua sponte* review of the action taken by the Board and the underlying record. That review raised a doubt in our mind respecting the correctness of the Board's disposition of the question of the necessity of requiring that the particulate radioactivity monitoring system be designed to withstand a safe shutdown earthquake. After requesting and receiving memoranda from the applicant and staff on this matter, we called for oral argument.

The argument was calendared for October 4, 1974. On September 16, however, we were notified by the applicant's counsel that, four days earlier, his client had announced that it had cancelled Units 3 and 4 and, additionally, had suspended construction of Units 1 and 2 "pending further consideration by [it] of the possible deferment or cancelation" of those two units. Counsel indicated to us that, while "[n]o date has been set for a decision with respect to Units 1 and 2", it was "possible" that such a decision would be made "within the next few weeks". In light of this advice, we vacated our oral argument order with the notation that we would expect the applicant to advise us promptly when it had reached its decision on Units 1 and 2.

It is now almost a year since the construction permits issued. And nine months have elapsed since the applicant suspended construction of Units 1 and 2 to abide the event of its determination as to whether it wished to go forward with those units. Inasmuch as nothing further has been heard from the applicant, we can reasonably assume both that no decision has as yet been made and that, since last September, no significant activities have taken place under the aegis of the construction permits. For the reasons hereinafter developed, we think that in these circumstances some action on our part may be now appropriate and we are calling for the views of the parties.

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[1] LBP-74-48, 7 AEC 1166.

[2] That initial decision had been preceded by a partial initial decision, issued on May 24, 1974, which had dealt with (1) the environmental aspects of the proceeding; and (2) the suitability of the site from a radiological health and safety standpoint (see 10 CFR 50.10(e)(2)). LBP-74-39, RAI-74-5 895.

A. It seems quite clear that an applicant for a nuclear facility construction permit is under no legal compulsion to make use of the permit if and when it is obtained. Further, neither the Atomic Energy Act nor the Commission's regulations require observance of any precise schedule for the commencement and progress of the construction work allowed by the permit. The Act does provide that "[t]he construction permit shall state the earliest and latest dates for the completion of the construction . . .". Section 185, 42 U.S.C. 2235. And the failure to complete the facility by the prescribed deadline will result in a forfeiture of the permit and all rights thereunder unless for "good cause shown" the deadline is extended by the Commission. *Ibid;* see also *Indiana and Michigan Electric Co.* (Donald C. Cook Nuclear Plant, Units 1 and 2), ALAB-129, 6 AEC 414 (1973). But these provisions do not call upon the Commission to fix an outer limit for the completion of any specific phase of the total project.

In this instance, the Unit 1 construction permit establishes October 1979 and April 1981, respectively, as the earliest and latest dates for facility completion.[3] It may well be that, notwithstanding the fact that construction now has been suspended for nine months, the applicant would be able to meet the April 1981 deadline (at least if a decision to proceed were forthcoming in the near future). We may also assume, although we need not and do not now decide the point, that the reasons which prompted the suspension might justify the requisite "good cause" determination should the applicant find it necessary to seek an extension of the completion date. Nonetheless, the present situation gives us some measure of concern.

We think it at least open to question whether it was the contemplation of either the Congress or the Commission that an applicant would place its construction permit, once granted, in dead storage for an indefinite period while it pondered whether to build the facility.[4] To be sure, at any time during the period allotted for construction (including at its very inception), circumstances essentially beyond the applicant's control—such as adverse weather conditions, material shortages or labor difficulties—might necessitate a temporary cessation of construction activity of uncertain duration. In allowing the Commission to extend for "good cause" the completion deadline, Congress presumably had this consideration in mind. See *Cook*, ALAB-129, *supra.* But its insistence that such a deadline be imposed cuts against any suggestion that Congress envisaged a regulatory scheme whereby an applicant could apply for and obtain a permit and then hold it in reserve until such time, if ever, as it seemed to make good business sense to put the permit to use.

[3] In the case of Unit 2, those dates are October 1980 and April 1982.

[4] In this connection, it seems doubtful that much, if any, actual construction work was performed between June 28 and the announcement of the suspension on September 12. The decision to reevaluate the need for or the feasibility of Units 1 and 2 presumably was not hastily made and it is reasonable to suppose that, while the matter was under consideration, the applicant was not prepared to invest substantial sums in construction work.

This is not to say that we glean from Section 185 an implicit carryover into nuclear licensing of the principle of non-user which might justify, at a point short of the prescribed completion deadline, the forfeiture of a construction permit on the ground that it was not being employed. Moreover, it must be acknowledged that, although having had every intention of proceeding expeditiously with construction as soon as the permit issued, an applicant might find some eleventh hour development to require a reevaluation of the need for, or the economic feasibility of, the facility in question. In such circumstances, it would of course be most unreasonable effectively to preclude that applicant from making such a reevaluation by forcing it to choose between proceeding with construction at once or losing its permit. But where, as here, the construction permits have been outstanding for almost a full year and the applicant apparently still is unable to reach a decision as to whether it should move forward with the facility, it may be that the right to put the permits to use at some later date should become qualified.

In the context of this case, had the applicant's election to defer embarking upon significant construction been made *prior* to the issuance of the Licensing Board's initial decision, and had that Board been led to understand that it might be at least a year before the applicant determined whether it would abandon the project altogether, it is unlikely that the construction permits would have been then authorized. Instead, the probability is that the Board would have stayed its hand until such time as the applicant reached a decision. And, even then, the Board doubtless would have wished to assure itself that, in the interim, there had evolved no changed circumstances which might have affected either (1) the applicant's entitlement to construction permits or (2) the conditions which should be imposed upon any permit which might issue. If (as appears to us) this would have been a sound approach in such a situation, why is it not equally sound as applied to the situation at bar?

The only readily apparent factual distinction is that this applicant's decision to defer construction was made (or at least was publicly announced) after and not before the Licensing Board rendered its decision and the construction permits issued. It is not clear to us that this distinction is significant. Although the Licensing Board no longer has jurisdiction over the licensing proceeding, we still do. Our order of September 24, 1974, which vacated the earlier oral argument order of September 11, expressly provided that we were holding our *sua sponte* review of the initial decision in abeyance pending the applicant's advice as to its intentions. This being so, it would appear at first blush that we have sufficient continuing authority to insure that, during the extended interval of no activity under the construction permits, there has not been a change in circumstances having a material bearing upon either the warrant for the permits or the conditions which should be included in them.

B. In view of the foregoing, the applicant and the NRC staff are requested to file memoranda *on or before July 15, 1975* which are to be addressed to the following questions:

1. Whether, in the totality of the circumstances of the case, this Board has the authority to suspend the effectiveness of the outstanding construction permits for Units 1 and 2 pending the applicant's determination as to whether it desires to proceed with construction of those two units.

2. Whether, assuming such authority exists, such a suspension of both permits should or should not now be directed.

3. Whether any suspension which might be now directed should be on the following basis:

a. The suspension of each permit would automatically remain in effect until such time as the applicant determined whether it desired to proceed with construction of the unit covered by that permit.

b. Should it decide to proceed with the construction of one or both of the units, the applicant might move this Board for an order lifting the suspension forthwith. To obtain such relief immediately, the motion would have to be accompanied by a certification by the NRC staff that, in its judgment, there have been no changed circumstances since June 1974 materially bearing upon the warrant for the construction of the unit or units.[5]

c. Should the suspension be lifted forthwith on the strength of the motion and the staff certification, this Board would then consider, as part of its general review of the initial decision, whether additional or modified conditions should be imposed upon the reinstated permit(s) as a result of developments occurring since June 1974.

4. Whether any suspension which might be now directed should be on some basis other than that outlined in question "3".

C. There is, of course, the possibility that, prior to the due date of the memoranda called for by this order, the applicant will have made some further determination respecting Units 1 and 2. Depending upon the nature and scope of the determination, the obligation to file the memoranda may be altered.

1. Should the applicant elect to cancel both units, the memoranda will no longer be required since the questions to be addressed therein will have become moot.

2. Should the applicant elect to go forward with both units, the filing of the memoranda may be deferred pending further order of this Board. The

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[5] This proceeding being uncontested, the lifting of the suspension on the strength of the staff certification would abridge no rights of any party.

Were the staff not to deem such a certification to be warranted, this Board would determine the changed circumstances question after hearing from both parties.

applicant shall, however, inform us as to the construction schedule which it proposes to follow with respect to each unit.

3. Should the applicant reach a decision on only one of the two units,[6] the memoranda are still to be filed with respect to the other unit.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

[6] For example, the applicant might determine to cancel Unit 2 and continue to reserve judgment on Unit 1. Or it might choose to go forward with Unit 1 and leave the fate of Unit 2 for later determination. In the latter eventuality, the applicant's memorandum is to indicate the proposed construction schedule for Unit 1.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-277

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Dr. John H. Buck, Member
Richard S. Salzman, Member

In the Matter of

POTOMAC ELECTRIC POWER COMPANY

(Douglas Point Nuclear Generating Station, Units 1 and 2)

Docket Nos. 50-448
50-449

Mr. George F. Trowbridge, Washington, D. C. for the applicant, Potomac Electric Power Company.

Mr. Frederick L. Kelly, Annapolis, Maryland, for the Chesapeake Bay Foundation and Citizens' Council for a Clean Potomac, intervenors.

Mr. Robert A. Vanderhye, Springfield, Virginia, for Mr. Edward J. Wojciechowicz, intervenor.

Mr. Frederick S. Fisher, Richmond, Virginia (Andrew P. Miller, Attorney General of Virginia, Messrs. Gerald L. Baliles, and James E. Ryan, Jr. with him on the brief), for the Commonwealth of Virginia.

Mr. Edward F. Lawson, Special Assistant Attorney General, Annapolis, Maryland, for the State of Maryland.

Mr. Geoffrey P. Gitner (Mr. Iver A. Stridiron with him on the brief) for the Nuclear Regulatory Commission staff.

Upon referral by Licensing Board of its determination to defer evidentiary hearings as a result of the applicant's postponement of construction and operation of the reactors for several years (LBP-75-7), Appeal Board rules that (1) no statute or regulation requires deferral and (2) there is apparent good reason to hold an early hearing on at least many site-related issues.

RULES OF PRACTICE: SCHEDULING OF HEARINGS

Licensing boards have the general authority to regulate the course of a hearing (10 CFR §2.718(e)), and are empowered to consider a particular issue or issues separately from, and prior to, other issues relating to the effect of the construction and/or operation of the facility upon the public health and safety, the common defense and security, and the environment (10 CFR Part 2, Appendix A, par. I.(c)).

RULES OF PRACTICE: SCHEDULING OF HEARINGS

The Atomic Energy Act, NEPA, and the Commission's regulations do not attempt to fix the precise time at which evidence is to be gathered and findings made.

RULES OF PRACTICE: SCHEDULING OF HEARINGS

A hearing convened under the authority of 10 CFR §2.761a could not culminate in the grant of a Limited Work Authorization (LWA) unless all environmental issues, including need for power, were explored at the hearing; however, that section does not bar the holding of a hearing on some, but not all, of the environmental issues where an applicant is not seeking an immediate LWA.

ATOMIC ENERGY ACT: SCOPE OF
INFORMATION REQUIRED FOR LICENSING

A final decision on an application for a construction permit must rest on the best information available at the time of the rendition of that decision; any findings which might be made on a record developed well in advance of final decision must be regarded as subject to reconsideration should supervening developments or newly available evidence so warrant.

RULES OF PRACTICE: SCHEDULING OF HEARINGS

Since radiological health and safety issues direct an inquiry into whether the proposed reactor satisfies certain absolute standards prescribed by the Commission, and since there is a very low risk of a massive discrediting in a two or three-year period of safety findings (particularly those which are site related), an early hearing on site-related safety issues may be proper and beneficial to all involved.

RULES OF PRACTICE: SCHEDULING OF HEARINGS

Since environmental issues are not decided by measuring the environmental impact of the facility against absolute standards, but rather by balancing

environmental costs and benefits (giving full consideration to possible alternatives), a final NEPA judgment on the acceptability of a particular reactor cannot be made until evidence on both costs and benefits is available. However, where certain environmental costs may be pinpointed and measured with reasonable precision and certainty, it may serve a useful purpose to consider them at an earlier stage.

RULES OF PRACTICE: SCHEDULING OF HEARINGS

In deciding when hearings should be held on specific issues, a licensing board should consider: (1) the degree of likelihood that any early findings on the issue(s) would retain their validity; (2) the advantage, if any, to the public interest and to the litigants in having an early, if not necessarily conclusive, resolution of the issue(s); and (3) the extent to which the hearing of the issue(s) at an early stage would, particularly if the issue(s) were later reopened because of supervening developments, occasion prejudice to one or more of the litigants.

RULES OF PRACTICE: SCHEDULING OF HEARINGS

Although entitled to recognition, the convenience of litigants cannot be deemed dispositive on scheduling matters; the paramount consideration is where the broader public interest lies.

RULES OF PRACTICE: SCHEDULING OF HEARINGS

Where a licensing board holds an early hearing and makes findings as a result thereof, it must take pains to insure that the early findings will not improperly influence its eventual decision whether construction of the facility should be authorized.

CONSTRUCTION PERMIT HEARINGS:
HEALTH AND SAFETY ISSUES

Where a facility is to be located near an airport, the applicant must demonstrate that the possibility of an airplane accident affecting the facility is so small that the presence of the airport "does not detract from the acceptibility of the site or require any special precautions." *Shoreham,* ALAB-156, RAI-73-10 831, 846.

CONSTRUCTION PERMIT HEARINGS:
HEALTH AND SAFETY ISSUES

Population density and distribution must be considered in a safety evaluation of a site. Irrespective of when made, population findings involve predictions of the situation in the years ahead. See *San Onofre,* ALAB-248, RAI-74-12 957, 959-60.

MEMORANDUM

June 18, 1975

Opinion of Mr. Rosenthal and Dr. Buck:

This construction permit proceeding has given rise to a seemingly novel question: Should evidentiary hearings proceed notwithstanding the applicant's postponement of construction and operation of its Douglas Point facility for several years? The Licensing Board has answered the question in the negative. LBP-75-7, NRCI-75/3 233 (March 10, 1975). In that Board's view, it would be both inappropriate and contrary to the intent underlying Commission regulations to move forward with hearings in these circumstances. This determination has been referred to us for interlocutory review. *Ibid.* See 10 CFR 2.730(f).[1]

For the reasons hereinafter set forth, it is our judgment that (1) no provision of statute or regulation compels the conclusion that evidentiary hearings should be deferred; and (2) on balance, there appears to be good reason to proceed with the taking of evidence now on at least many of the site-related issues presented in the proceeding.

I

The facts relevant to the referred question are simple and undisputed. In 1973 the Potomac Electric Power Company applied for permits to construct Units 1 and 2 of the Douglas Point facility, to be located on the east bank of the Potomac River, approximately 30 miles downstream from Washington, D. C. in Charles County, Maryland. The applications indicated that the two units were to be put in operation in 1980 and 1982, respectively.

In response to the ensuing formal notice of hearing, several petitions for leave to intervene were filed and granted.[2] These petitions raised myriad safety and environmental issues, a number of which are site-related.

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[1] All references herein are to the 1975 revision of the Code of Federal Regulations.

[2] The parties admitted to the proceeding as intervenors are the Prince George's Environmental Coalition and the Sierra Club (Sierra Coalition); the Citizens' Council for a Clean Potomac (Citizens Council); Mr. Edward J. Wojciechowicz; the Environmental Defense Fund (EDF), which has been consolidated for purposes of this proceeding with the Sierra Coalition; the United States Marine Corps; and the Chesapeake Bay Foundation (CBF), which had been consolidated with the Citizens Council. The Department of Natural Resources of the State of Maryland and the Commonwealth of Virginia were each admitted as an interested State, pursuant to 10 CFR 2.715(c). Mr. Glenn L. Reitze was initially admitted as a party intervenor but later dismissed. See ALAB-218, RAI-74-7 79 (July 15, 1974).

While the customary prehearing activities were in progress, the applicant announced that it had altered the proposed in-service dates for the units. As matters now stand, those dates are 1985 and 1987, respectively. As a consequence of this postponement, the applicant does not intend to commence on-site construction of Unit 1 (assuming the requisite authorization is obtained) until sometime in 1979. Under the revised schedule, erection of the main facility structures would not start until early 1980; the applicant contemplates, however, resuming the intensive development of the design of the reactors and associated equipment in early 1977.

Despite the deferral of construction and operation, the applicant moved the Licensing Board to proceed now with evidentiary hearings on all issues apart from the Company's financial qualifications and the need for the power to be generated by the Douglas Point facility. The motion was supported, at least in part, by the NRC staff and three of the intervenors—the Commonwealth of Virginia, the State of Maryland and the United States Marine Corps. Other intervenors—Mr. Wojciechowicz and Chesapeake Bay Foundation/Citizens Council for a Clean Potomac—asserted, however, that no issues should be heard at this time.

In its referral order, the Licensing Board gave these reasons for concluding that the applicant's motion should be denied in its entirety:

> The Board's position is that it should not proceed with fragmented hearings on the basis that they cannot result in any really meaningful findings of fact at this early stage. The Board anticipates an absolute need for current information not only in the environmental area for a valid NEPA cost benefit balance but also in the area of health and safety where history indicates a reasonable possibility of changing standards within a period of several years. The Board believes that, within practical limits, the hearing process should be conducted as proximate as possible to Applicant's requirement for a limited work authorization and/or construction permit. It is our belief that the regulations referring to separate hearings on site suitability and other subissues were promulgated on the assumption that the Applicant was prepared to furnish reliable, probative evidence on need for power and financial ability to construct the facility. This situation does not lend itself to that premise.
>
> In summary, the Board is very aware of its obligations to all parties and desires to proceed with full consideration of the interests of the Applicant, Intervenors, and Staff. We are unable to accept the position that piecemeal hearings with interim findings of fact approximately four (4) years prior to the current estimated time of the commencement of construction will be of practical value to any party and could perhaps curtail meaningful participation by several of the parties because of their limited resources.

NRCI-75/3 at 238-39.

II

Licensing boards have, of course, the general authority to "'[r]egulate the course of the hearing" (10 CFR 2.718(e))—an authority which we have held encompasses determinations as to when a particular hearing should take place. *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-39, 4 AEC 727 (1971). Moreover, those boards are empowered to consider, either on their own initiative or on a party's request, a particular issue or issues "separately from, and prior to, other issues relating to the effect of the construction and/or operation of the facility upon the public health and safety, the common defense and security and the environment . . .". 10 CFR Part 2, Appendix A, par. I.(c); see also *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-86, 5 AEC 376, 377-78 (1972).

We read the Licensing Board's referral order to suggest, however, that there may be legal impediments to the scheduling of any issue—safety or environmental—for hearing several years before the applicant will be prepared to commence construction. Although the order does not elaborate the point, it appears that the Board finds in both the Atomic Energy Act and the National Environmental Policy Act an at least implicit directive that the issues arising under those Acts be considered and decided "as proximate as possible to Applicant's requirement for a limited work authorization and/or construction permit"—to insure that any authorization which may be forthcoming is grounded upon "current information". Beyond that, as we have seen, the Board looks upon its power to conduct "separate hearings on site suitability and other subissues" as being implicitly qualified; *viz.*, it is not to be exercised unless the applicant is ready to go forward on the issues of (1) its financial ability to construct the facility and (2) the need for the power that would be generated by the facility.

Our careful examination of the relevant legislative enactments, as well as of Parts 2, 50 and 51 of 10 CFR, leaves us unconvinced that an impenetrable barrier has been erected to an early scrutiny of any of the issues which must be resolved before the ultimate licensing action is taken. Certainly the existence of such a barrier cannot be derived from the express terms of a statute or regulation. Both the Atomic Energy Act and NEPA are singularly free of provisions purporting to fix the precise time at which evidence is to be gathered and findings made. Just as clearly, the Commission's regulations do not attempt to dictate such matters.[3]

[3] In this connection, we cannot agree with the Licensing Board regarding the effect of Section 2.761a of the Rules of Practice, which specifically authorizes a separate hearing on site suitability and environmental issues. Read in conjunction with 10 CFR 50.10(e) (2), Section 2.761a simply paves the way for the issuance of a limited work authorization (LWA) permitting certain preliminary construction activities, upon the completion of a *full* environmental review and a determination that there is reasonable assurance that the

(Footnote continued on page 545.)

To be sure, it doubtless was the contemplation of the Congress and the Commission that the *final decision* on an application under review would rest on the best information available at the time of the rendition of that decision. Indeed, we ourselves recognized as much in *Commonwealth Edison Co.* (LaSalle County Nuclear Station, Units 1 and 2), ALAB-153, 6 AEC 821, 823-24 (1973). But it scarcely follows perforce that no issues can be heard and no findings can be made until the eleventh hour. Rather, all that this means is that any findings which might be made on a record developed well in advance of final decision must be regarded as subject to reconsideration should supervening developments or newly available evidence so warrant. *Cf. Hudson River Fishermen's Ass'n.* v. *Federal Power Com'n.*, 498 F 2d. 827 (2nd Cir 1974).

Although not saying so explicitly, the Licensing Board apparently thought that no early findings which it might make would likely withstand the passage of time—at least that seems the most reasonable interpretation of its observation that no hearing held now could result in "any really meaningful findings of fact". We leave for discussion in a later portion of this opinion whether, taken in the light of the specific issues which are presented in the case at bar, that judgment has a solid foundation here. At this juncture, suffice it to note that we do not believe that it has such universal validity that we should imply a legislative or administrative command that, in all cases, the commencement of any evidentiary hearings must await the approach of the time at which the applicant will wish to obtain a limited work authorization or construction permit.

Insofar as radiological health and safety is concerned, we stressed in *Maine Yankee*[4] that the licensing board's inquiry is directed to whether the proposed reactor satisfies certain absolute standards prescribed by the Commission. Barring some unusual circumstance, if the reactor comports with all applicable regulations the requisite safety findings can be made; if it does not, the reactor may not be licensed irrespective of any other consideration (such as the benefit

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(Footnote 3 continued)
proposed site "is a suitable location for a nuclear power reactor of the general size and type proposed from the standpoint" of health and safety. See also the statement of considerations accompanying the adoption of Section 2.761a, 39 *F.R.* 14506, 14507 (April 24, 1974). Consequently, a hearing convened under the authority of the Section could not culminate in the grant of a LWA unless all environmental issues, including need for power, were explored at that hearing. We find nothing in the Section, however, to suggest that, where an applicant is not seeking an immediate LWA, a hearing cannot be held on some, but not all, of the environmental issues.

[4] *Maine Yankee Atomic Power Company* (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003 (1973), petition for review pending, D.C. Circuit, No. 74-1186. The Commission remanded the proceeding to us for clarification of one aspect of ALAB-161 not pertinent to the issue here under consideration. CLI-74-2, 7 AEC 2 (1974). The clarification was provided in ALAB-175, 7 AEC 62 (1974).

that will be derived from the power which it would generate). Once the safety analyses have been completed and issued,[5] considerable detailed data become available to both the parties and the board upon the basis of which informed conclusions respecting the reactor's conformity with existing regulations can appropriately be drawn. Quite true, the analyses may be later modified; additional information may come to the fore; or (as the Licensing Board here emphasized) the governing standards may undergo some alteration. Should this occur, we reiterate, the result might well be that one or more of the safety findings made in reliance upon the record of the early hearing would require reevaluation and perhaps revision.[6] But our experience teaches that there is a very low risk of a massive discrediting of safety findings (particularly those related to the characteristics of the site) by reason of developments materializing in the relatively short span of two to three years.

In this connection, it should be borne in mind that an early hearing might determine, on evidence unlikely to become stale, that local geological or weather conditions make the proposed site unacceptable. Assuredly, such a determination could not be dismissed as being without significance. To the contrary, wasteful expenditures of both time and money would be obviated by alerting the applicant promptly to the need to find a better location for its plant. The resultant benefit to the public (not just to the applicant) is manifest.

In contrast to safety matters, environmental issues are not decided by measuring the environmental impact of the facility against absolute standards. *Maine Yankee, supra.* Rather, the licensing board must determine the environmental costs of the proposal at bar and balance the benefits against those costs, given full consideration to possible alternatives to the proposal. This being so, an ultimate NEPA judgment cannot be reached on the environmental acceptability of a particular reactor until all of the evidence has been garnered on both benefits and detriments.

Once the Final Environmental Statement[7] has been released, however, it may well be possible both to pinpoint and to measure, with reasonable precision and certainty, many of the environmental costs which will be involved in constructing and operating the reactor. Where this can be done, a useful purpose conceivably would be served by having those costs considered at an early hearing—notwithstanding the fact that the striking of the final NEPA balance

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[5] The applicant's preliminary safety analysis report (PSAR) forms a part of the construction permit application. The staff's safety evaluation report (SER) is filed at a later time. It is our understanding that the SER relating to Douglas Point is to be released shortly.

[6] In making its ultimate determination on the issuance of construction permits, the Licensing Board will have to apply, of course, the then current safety standards (including those embraced by 10 CFR 50.55a as it may read at that time). See ALAB-218, *supra*, RAI-74-7 at 82-83.

[7] As in the case of the SER, the staff intends to issue the Douglas Point FES in the near future.

may still be some time off. For example, it might clearly appear from the FES, taken in conjunction with other evidence adduced at that hearing, that the total environmental impact necessarily associated with construction or operation of the facility at the proposed site would be such that it could be now said confidently that some other thoroughly scrutinized site is superior to it. Patently, this could not lead to an immediate licensing of the facility at that alternate site. But, as in the instance of a finding that the proposed site does not meet applicable safety standards, an economy of time and expense might be achieved were the applicant put on notice that, as a matter of virtual certainty, its site choice would be rejected on environmental grounds.

Another, and perhaps more likely, contingency is that the early hearing would disclose a need for taking further steps to ameliorate particular readily identifiable environmental costs of construction or operation at the proposed site—a need which likely would not be affected by any later determination which might be made on other issues not embraced by that hearing. Or the evidence might suggest that more data should be obtained on the dimensions of certain threatened environmental harm; *e.g.*, that additional investigation is called for to ascertain more precisely the effect of the facility's proposed cooling system upon the marine environment. A finding along one of these lines would not amount to a final disposition of any environmental question. But, especially if forthcoming appreciably in advance of the target date for the start of construction activities, it might produce a substantial reduction in the eventual overall environmental impact of the facility.

These considerations make us most reluctant to ascribe to either Congress or the Commission the unarticulated purpose of requiring, as a matter of law, the deferral of all evidentiary hearings if it should turn out that the applicant will not require the sought permit or license for several more years. Rather, the absence of any rigid scheduling criteria established by statute or regulation suggests that the adjudicatory boards were to decide for themselves in such circumstances when hearings should be held on specific issues. It seems to us that a variety of factors appropriately should be taken into account in reaching that decision. Principal among them are: (1) the degree of likelihood that any early findings on the issue(s) would retain their validity; (2) the advantage, if any, to the public interest and to the litigants in having an early, if not necessarily conclusive, resolution of the issue(s); and (3) the extent to which the hearing of the issue(s) at an early stage would, particularly if the issue(s) were later reopened because of supervening developments, occasion prejudice to one or more of the litigants.

III

The basic scheduling responsibility having been vested in the licensing boards, it is for the Board below to apply to the issues before it the factors to

which we have just referred. Nonetheless, we record our belief that, in this case, a proper application of the factors likely will require the conclusion that an early hearing should be held on a significant number (although perhaps not all) of those issues which may be said to be site-related; *i.e.*, necessitate an inquiry into the safety and environmental implications of the location and features of the site.

A. 1. There is nothing before us to indicate a probability that many of the ingredients of the Licensing Board's safety evaluation of the Douglas Point site might change materially over the maximum four-year period which might separate the early hearing from the contemplated start of construction. The physical contours of the site and its setting are, after all, essentially fixed. So are its seismology, meteorology, geology and hydrology—all of which must be examined in order to determine whether a site complies with the criteria set forth in 10 CFR Part 100. See 10 CFR 100.10(c) and Appendix A to Part 100. Assuming that the investigation of these matters has been sufficiently thorough, reliable findings should be possible on the issues which concern them. If certain aspects of the site have not been fully studied, that too can be established.

An examination of some of the contested issues bears this out. For example, Mr. Wojciechowicz claims that the applicant's "analysis of the geological structure and history" of the site is inadequate, and that in fact "there is evidence of geological faults in the area" (contention 19). It should be now determinable whether this claim has merit; if meritorious, the Douglas Point site might be found not to conform to the seismic and geologic siting criteria found in Appendix A to Part 100. True, as Mr. Wojciechowicz stresses, the existing information regarding faults in the Douglas Point vicinity may be augmented. But we have been given no cause to believe that such conclusions as may be dictated by the extensive data now available likely will be materially affected by any new information coming to light in the next few years. Thus, a look at this juncture at the seismic question would not be tantamount to writing in sand.

Mr. Wojciechowicz has also asserted that the location of the site near "a large amount of domestic, military, and experimental air traffic makes the risk of locating a nuclear facility there unacceptable" (contention 20). The reference is to the air station which is located across the Potomac River at the Quantico, Virginia, Marine Corps installation. We have held that where, as here, a facility is to be located near an airport, the applicant must demonstrate that the possibility of an airplane accident affecting the facility is so small that the presence of the airport "does not detract from the acceptability of the site or require any special precautions." *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 846 (1973). Whether the siting of Douglas Point near Quantico presents a potential safety problem is dependent on the distances involved and the quantity and type of air traffic using that installation. The former is, of course, fixed, and the Marine Corp's intervention petition implicitly

represents that the present use of the air station will remain essentially unchanged.[8]

2. We turn now to site-related environmental issues. The applicant has submitted a multi-volume environmental report and the staff has prepared and circulated a draft environmental statement (DES). The FES will be available soon (see n. 7, *supra*). Moreover, the State of Maryland, as part of its power plant siting program, is nearing completion of its own study of the Douglas Point site.

It appears from the Environmental Report (ER) and the DES that both the applicant and the staff have closely analyzed not only Douglas Point but also the two other sites (Belvedere and Carroll Pond) which the staff appears currently to believe are the best available alternatives.[9] These analyses have made available considerable information respecting the environmental costs which will be attendant to use of the Douglas Point site for a nuclear facility.[10] They also seem to provide enough data pertaining to the other sites to establish a foundation for an environmental comparison of all feasible locations considered to date. Granted, the product of studies of additional sites may become available within the next few years. See *infra*, p. 551. Consequently, it could not be now determined definitively that Douglas Point is the optimum site. But it is open to decision at this time whether, all things considered, the Douglas Point site is—or can be made through additional environmental safeguards—the best of those which have thus far been evaluated. And, upon a negative determination, that site might be decisively rejected without abiding the event of further hearings.

This point is illustrated by the Marine Corps' contention that the operation of cooling towers at Douglas Point would have a crippling effect on air traffic at Quantico. Since in any case the resolution of this contention cannot await the results of actual tower operation, the matter seems ripe for present consideration. Among the things which should be susceptible of ascertainment are whether there has been an adequate inquiry by the applicant and staff into

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[8] In a safety evaluation of the site, population density and distribution must also be taken into account. See 10 CFR 100.10(b) and 100.11(a)(3). Population patterns are, of course, susceptible of greater change over the short-term than are the physical characteristics of the site. Nonetheless, it should be now possible to make a reasonably informed judgment, based upon both existing land use and projections as to future growth or alteration, respecting whether the site is unacceptable because of population considerations. In this regard, irrespective of when made, population findings will involve predictions as to what will be the situation in the years ahead. See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, RAI-74-12 957, 959-60 (December 24, 1974).

[9] Additionally, the ER reviews, albeit in considerably less detail, certain other sites which, for one or another assigned reason, the applicant rejected as unsatisfactory.

[10] The contentions of particularly the Marine Corps and CBF–Citizens Council are addressed to these costs.

the environmental effects of the proposed cooling towers and alternative cooling systems (including other types of towers). If the Marine Corps is found justified in its insistence that the inquiry to date has not been adequate, further study could be ordered. On the other hand, should the studies already made be found sufficient, the Board could go on to consider, based upon these studies and any other adduced evidence, whether the avoidance of serious interference with military operations requires either resort to some other cooling system at Douglas Point or an abandonment of that site altogether.[11]

B. There are manifest advantages to ascertaining at the earliest opportunity whether (1) the Douglas Point site has a conceivably fatal flaw; (2) additional measures would be required either to allow the use of that site at all or to mitigate potential adverse environmental consequences; and (3) additional studies are called for. We have touched upon these advantages in the generic discussion in Part II, *supra,* and they are sufficiently obvious that it should not be necessary to dwell upon them further at this juncture. Insofar as this specific facility is concerned, however, it might be noted that the applicant has told us that, should the Douglas Point site be found unacceptable, it would be approximately nine and one-half years before the construction of the facility at another site could be completed. This estimate does not seem unreasonable and reinforces the desirability of making as prompt an evaluation of the now-proposed site as is feasible.

We need add only that, in recent communications with the Congress, the Commission has made apparent its own belief that the public interest would be best served by the resolution, early in the licensing process, of both safety and environmental issues relating to the acceptability of a site. In 1974, the Atomic Energy Commission proposed legislation which, *inter alia,* would have permitted the safety and environmental reviews of selected sites—and the approval of the sites—to occur prior to any application by a utility for a construction permit for a plant to be built upon any such site.[12] The Nuclear Regulatory Commission has submitted comparable legislation this year.[13] These proposals go far beyond what is being sought by the applicant here, for they would permit the definitive approval of a particular site for nuclear facility use before that site had been chosen by any utility for its nuclear facility.

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[11] Counsel for Maryland informed us at oral argument that the State will be prepared in the near future to make recommendations respecting the type of cooling towers which should be employed. Of course, Maryland is concerned with the protection of the marine environment, and not with air operations at Quantico.

[12] That legislation was introduced as H.R. 13484 and S. 3179, 93rd Congress, 2nd Session.

[13] See letters from the Chairman of the Commission to the Speaker of the House of Representatives and the President of the Senate, dated May 7, 1975. This legislation has been introduced as H.R. 7002 and S. 1717, 94th Congress, 1st Session.

Support for the 1974 proposal was forthcoming from sources other than utilities. One spokesman for a leading environmentalist organization succinctly stated the case for early site review in testifying before the congressional committee considering the measure:

> I think that, if there can be public reaction to sites under consideration at an early date, a number of sites will be eliminated early and one won't waste the time fighting over those sites, and the process will then become one of narrowing to sites that are truly going to be regarded as potential and logical for the construction of major utility generating facilities.[14]

The legislation proposed by the Commission as yet has not been enacted. Thus, as matters now stand, site approval cannot precede the filing of a construction permit application. The congressional inaction does not appear, however, to be attributable to a disagreement with the thinking which prompted the early site review provisions of the proposed legislation. Moreover, as we have already seen, once the construction permit application has been filed, hearings may proceed at any time without running afoul of any existing statutory directive or restriction.

C. 1. The holding of an early hearing on site-related issues undeniably might result in some degree of inconvenience and additional expense to one or more of the intervenors. Even if no occasion were to arise for the reopening of any of the issues considered at the early hearing, a second hearing most likely will be required to deal with other issues not addressed at that hearing. Moreover, a reopening might have to be ordered on some already litigated issues. Among other things, the Maryland study of potential sites other than Douglas Point will not be completed for another 16 months or so; when completed, it may bring to light additional information regarding the environmental costs of placing the plant at one of the alternate locations explored at the early hearing.[15] Apart from the Maryland study, as previously acknowledged the contingency of changed factual circumstances or altered regulatory standards can never be entirely discounted.

At the same time, however, a deferral of all site-related issues for several years might well increase the litigation burdens imposed upon the parties—one or more of the intervenors included. Considerable effort has already gone into trial preparation on a number of issues, and both the staff and Maryland have expressed concern that part of the fruits of that effort might be lost were a hearing on those issues to be postponed for a substantial period.

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[14] Statement of Albert K. Butzel, on behalf of Friends of the Earth. Hearings before the Joint Committee on Atomic Energy on H.R. 11957, H.R. 12823, H.R. 13484 and S. 3179, "Nuclear Powerplant Siting and Licensing," 93rd Congress, 2nd Session, Vol. I, p. 535 (March 22, 1974).

[15] Additionally at the second hearing, any site which Maryland's study indicates might be a practicable alternative to Douglas Point would have to be looked at if that site had not been reviewed in connection with the first hearing.

Our prescience is not such that we would be justified in attempting to forecast how great an incremental burden will be imposed upon any particular party if a hearing is—or is not—now held. The most that can be said on that score is that, so long as it were confined to issues as to which there appears to have been a reasonably full development of relevant information, an early hearing could effect an overall economy of time and resources insofar as all of the parties are concerned. Once again, depending upon the nature of the proof, the end result of the hearing might be the rejection of the Douglas Point site, which would obviate the need for any further hearings involving that site. Short of that, it could produce a direction to the applicant to take appropriate measures to alleviate certain determined risks to safety or to the environment—measures which, if taken, might satisfy the present objections of the intervenors.

In any event, although entitled to recognition, the convenience of litigants cannot be deemed dispositive on scheduling matters. The paramount consideration is where the broader public interest lies. For the reasons we have discussed, we find there to be a decided public interest in the prompt airing and resolution, to the extent possible, of questions pertaining to the acceptability of the site proposed for the facility.

2. The CBF-Citizens Council expresses fear that any environmental conclusions reached by the Licensing Board on the basis of the early hearing might play an unduly exalted role in the formulation of the ultimate NEPA judgments. This is not a totally unwarranted concern. There is a natural reluctance upon the part of decision makers to depart from even tentative prior conclusions unless compelled to do so. Thus, a preliminary determination following the early hearing that the Douglas Point site was not environmentally unacceptable might as a practical matter weigh heavily in the final NEPA balance, even if the second hearing either disclosed some newly discovered environmental costs or brought to the fore (*e.g.*, through the Maryland study) a seemingly superior, previously unconsidered alternate site.

But we are confident that the Licensing Board both can and will take pains to insure that any early site findings will not improperly influence its eventual decision whether the construction of the facility at the Douglas Point site should be authorized. *Cf. Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-212, 7 AEC 986, 997 (1974). Beyond that, we agree with the Commonwealth of Virginia that, before the second hearing, the NRC staff should circulate its FES,[16] together with (1) any adjudicatory environmental determinations made on the basis of the early hearing and (2) the supplement which the staff has volunteered to prepare. That supplement, according to the staff, will bring up to date and assess the continuing validity of the information contained in the FES (as modified by

[16] In normal circumstances, of course, only the DES is circulated.

disclosures at the early hearing). This procedure will insure that interested agencies and the public will have the opportunity to reassess the environmental impacts of the facility in the light of any augmentation of data or changed circumstances—which, in turn, should minimize the risk that stale information will be used in striking the final NEPA balance.

D. With regard to those issues which do not focus upon the suitability of the Douglas Point site from a reactor-safety or an environmental standpoint, we limit ourselves here to the observation that an application of the enumerated factors may produce a quite different conclusion—*i.e.*, that deferral to a later time is in order. There seems to us to be a much greater potential for a material change in the totality of the information or in the regulatory standards relevant to the disposition of such issues. Further, we can perceive much less advantage to be derived from passing upon, several years in advance of the scheduled start of construction, matters concerning facility design which do not bring the acceptability of the site into question. Among other things, the consummation of a required alteration in facility design (unlike a change in siting) would not normally involve a period of nine years or so.

The Licensing Board should reconsider the conclusions reached in its March 10, 1975 memorandum and order and take such further action as may be appropriate in light of the views expressed in this opinion.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

Mr. Salzman, concurring:

That the law does not fix any specific period in advance of actual construction for holding construction permit hearings seems clear. And there is much to be said in favor of finding out early rather than late whether a proposed site is an acceptable place for a nuclear facility. For these reasons, I concur in the opinion of my colleagues, subject to the comments which follow.

1. In fairness to the Licensing Board, it should be made plain that—legal issues to one side—its reluctance to commence hearings now was not without some foundation. The applicant presented the Board with a series of *ex parte* postponements of its intended start of construction. That date is over four years off; even today there is no guarantee that that distant day is firmly fixed. In

these circumstances, the disinclination of Licensing Board members with other responsibilities to begin a contested hearing on an application with a problematic future is understandable. Moreover, as I assume all can agree, bifurcated hearings are not an unmixed blessing. Accordingly, a Licensing Board decision to defer hearings—even on reconsideration in the light of our decision—would not necessarily cause serious inconvenience and might have advantages. Whether to start early site hearings and, if so, what issues to cover, are matters committed to the Licensing Board's sound judgment upon its fair evaluation of the factors set forth in the majority's opinion.

2. Part III D of the majority opinion limits itself to suggesting that the factors to be considered when applied to issues other than those related to the proposed site "may produce quite a different conclusion—*i.e.*, that deferral to a later time is in order." This seems to me to be an understatement. Early design approval—even if tentatively given—may well be a detriment to incorporating design advances at some later date. As my colleagues observe (p. 552, *supra*), there is indeed a "natural reluctance on the part of decision makers to depart from even tentative prior conclusions unless compelled to do so." Absent some very significant countervailing advantage in approving a facility design years in advance, the possibility of "locking in" outdated technology may not be disregarded.* The Supreme Court's observation in *Power Reactor Co.* v. *Electricians* seems as valid now as when made: . . . nuclear reactors are fast developing and fast changing. What is up to date now may not, probably will not, be as acceptable tomorrow." 367 U.S. 396, 408 (1961).

*The Douglas Point facility is not, as I understand it, one of the standard types approved by the staff. Were it one, then obviously other considerations might well obtain. See 10 CFR Part 50, App. M, N, and O.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-278

ATOMIC SAFETY AND LICENSING APPEAL BOARD

John B. Farmakides, Chairman
Dr. John H. Buck, Member
Dr. Lawrence R. Quarles, Member

In the Matter of

Docket No. 50-286

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

(Indian Point Station,
Unit No. 3)

Upon review of Licensing Board decision referring environmental stipulation and resolving certain health and safety questions considered by Board at its own behest, Appeal Board finds need for clarification of certain questions, including a seeming inconsistency in the imposition of a seismic condition on full-power operation but not on operation at 91% of full power.

Schedule established for submission of memoranda and for oral argument on such questions.

ORDER

June 20, 1975

On June 12, 1975, the Licensing Board issued a decision in this operating license proceeding involving Unit 3 of the Indian Point facility[1] which, *inter alia,* (1) referred to us for review a stipulation entered into by the parties; and (2) authorized the issuance to the applicant of a full-term, full-power operating license, "... subject to the determination by the Commission respecting the pending seismic contentions ...." By "seismic contentions," the Board had reference to a request, now pending before the Commission itself, that a show-cause hearing be held to explore the seismic conditions obtaining at the Indian Point site, which now contains three reactors.

[1] LBP-75-31, NRCI-75/6 593.

Notwithstanding the Licensing Board's directive that full-power operation not be authorized until the seismic matter is resolved, Unit 3 can be now allowed to operate at levels up to 91% of full power. This is because of an earlier order of that Board which authorized such operation without regard to the consideration or disposition of any seismic issue.

To our mind, there is at least a question respecting whether the disparity between the two orders has an adequate justification. A possibly serious safety matter being involved, we are therefore calling for the submission of memoranda to be followed by oral argument. Since it is obviously desirable to determine expeditiously the appropriate maximum permissible levels of Unit 3 operation pending resolution of the seismic issue, we are establishing an accelerated schedule for the memoranda and oral argument.

I

As set forth in the decision, an issue of seismic design was raised in this proceeding by the Atomic Energy Council of the State of New York (State). This matter was initially addressed in a report by the Geological Survey, New York State Museum & Science Survey, in April 1974. This report was apparently also the basis of a request by the Citizens Committee for Protection of the Environment (CCPE) to the Director of Regulation[2] that the applicant be ordered to show cause why the operating licenses for Indian Point Units 1 & 2, and the construction permit for Unit 3 should not be revoked. The Acting Director of Licensing denied the petition on November 29, 1974; thereafter the Citizens Committee appealed to the full Commission on January 15, 1975.

The Licensing Board also noted that during the Indian Point 3 proceeding, the State had initially contended that the Commission had misapplied Appendix A to 10 CFR Part 100. Later, after further consideration, the State sought to withdraw this contention as an issue, and requested the Commission to order a hearing on this matter in a consolidated proceeding pertaining to all three Indian Point units.[3]

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[2] In the Atomic Energy Commission, the Director of Regulation was the official to whom requests for show-cause orders were to be filed (10 CFR §2.206 (1975)); the Director of Licensing was a subordinate official who, *inter alia*, was delegated authority to act for the Director of Regulation in such matters (AEC Manual Chapter 0139). In the Nuclear Regulatory Commission, the authority to act upon requests for show-cause orders of this type rests with the Director of Nuclear Reactor Regulation (10 CFR §2.206, 40 *F.R.* 8774, 8777 (March 3, 1975)).

[3] The Commission permitted "interested persons" to respond to CCPE's appeal regarding the request for a show-cause order (Commission Order dated January 24, 1975, re Indian Point, Units 1, 2, & 3, unpublished). In making such response (dtd. April 21, 1975), the State requested a hearing on seismic issues which differed somewhat from the similar issues raised by CCPE.

In considering the State's request to withdraw the seismic issues, the Licensing Board recognized that "... seismic contentions are matters of major importance ..." which could be made issues and decided by the Board itself. However, the Licensing Board permitted these contentions to be withdrawn because it noted that "... the Commission in its order of January 24, 1975, had stated that it '... will act upon [the hearing] request' ". The Board went on to note that its authorization for full power operation is subject to the determination by the Commission respecting the seismic matter. And in the very next sentence,[4] the Board further noted that by order of April 8, 1975, it had authorized issuance of an operating license to permit fuel loading, subcritical and low power testing and limited operation not to exceed 91% of rated power.

Thus, although a full-power license cannot be issued until the seismic question has been resolved, the plant, nevertheless, may operate indefinitely at 91% of full power pending resolution of the seismic question. We find no stated reason in the Board's decision which substantiates this differentiation between full power operation and operation at 91% of full power.

In view of the stipulation appended to the Board's decision, executed after the seismic issue had been identified, we must assume that the parties agreed to full power operation without any seismic condition. Because of the seeming inconsistency between having the condition imposed on full-power operation but not on operation at 91% of full power, we hereby direct that each party respond to the following questions:

1. Considering the seismic condition imposed by the Licensing Board on the authorization for a full power license, what is the difference in the risk to the public health and safety between operation at 91% of full power, and operation at full power?

2. If there is no significant difference in the risk to the public health and safety between operation at 91% of full power and at 100% of full power, should not authorizations for operation at these levels be consistent?

3. If there is a significant difference, then is it significant enough to justify the authorization permitting operation at 91% of full power without any seismic condition? If not, what condition(s) should be imposed?

II

Another question requires further clarification. The post-hearing submittal noted by the Licensing Board in footnote 19, NRCI-75/6 at 604, of its decision apparently relates to a letter dated June 2, 1975, addressed to the Chairman of the Licensing Board from counsel for Hudson River Fishermen's Association (HRFA) and Save our Stripers (SOS) stating a position on further action of the

[4] NRCI-75/6 at 603.

Commission. Is this position consistent with the Licensing Board's stated objective of requiring further opportunity for a hearing[5] once the additional information is obtained on the environmental impact of the closed-cycle cooling tower(s)?

III

In view of the need for expedition, the parties are to file memoranda responsive to the posed questions on or before June 30, 1975. Oral argument thereon is hereby scheduled to commence at 10:00 a.m. on Wednesday, July 9, 1975, in the Appeal Panel Hearing Room, 5th Floor, East West Towers, 4350 East-West Highway, Bethesda, Maryland 20014.

Each party is allotted a total of 30 minutes for presentation of argument and response to questions raised.

Each party shall notify the Secretary to this Board by letter mailed no later than June 30, 1975, of the name(s) of counsel who will present oral argument on its behalf.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

[5] NRCI 75/6 at 599; Tr. 320.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ALAB-279

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Alan S. Rosenthal, Chairman
Richard S. Salzman, Member
John B. Farmakides, Member

In the Matter of

Docket No. 50-482A

KANSAS GAS AND ELECTRIC COMPANY AND KANSAS CITY POWER AND LIGHT COMPANY

(Wolf Creek Generating Station, Unit No. 1)

Mr. Gerald Charnoff, Washington, D. C., argued the cause and filed a brief for the applicant, Kansas Gas and Electric Company, appellant.

Mr. Philip Kassebaum, Wichita, Kansas, argued the cause for intervenor Kansas Electric Cooperatives, Inc., appellee; with him on the brief were Messrs. Richard J. Wertheimer and Leonard B. Simon, Washington, D. C.

Mr. Lee Scott Dewey argued the cause and filed a brief for the Nuclear Regulatory Commission staff.

Upon appeal from a Licensing Board order granting intervention and a hearing on antitrust aspects of a construction permit proceeding (LBP-75-13), the Appeal Board rules that (1) it is within the Commission's antitrust jurisdiction to consider the anticompetitive effect of applicant's refusal to "wheel" supplemental electric power, but (2) the intervention petition lacks requisite specificity to comply with the Commission's rules of practice.

Licensing Board order vacated. Cause remanded with instructions to dismiss petition without prejudice to subsequent submission of amended pleading.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

Where construction or operation of a nuclear power facility "would create or maintain a situation inconsistent with the antitrust laws," the Commission need not withhold a license but may condition it to correct the anticompetitive situation. 42 U.S.C. §2135(c).

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

The prelicensing antitrust review requirement contained in Section 105 of the Atomic Energy Act reflects a basic Congressional concern over access to nuclear power, and an intent that such access be as widespread as possible.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

Under Section 105c of the Atomic Energy Act, the Commission must hold a hearing on antitrust issues if the Attorney General so recommends or, in the absence of such a recommendation, if antitrust issues are raised by a person in the manner required by the Commission's rules or regulations.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

As the Commission is directed to consider not only whether granting a license would "create" an anticompetitive situation but also whether it would "maintain" one, it is within its jurisdiction to take cognizance of an applicant's extra-license conduct which allegedly has given rise to that situation.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

The phrase "activities under the license" in Section 105 of the Atomic Energy Act does not limit the Commission's antitrust authority to the consideration of the operation of a nuclear plant in isolation.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

An applicant cannot affect the Commission's antitrust jurisdiction by offering "physical access" to a nuclear plant and its power; the Commission may look behind such an offer to see if it is *bona fide* or, because of the offeror's concurrent refusal to wheel power, but a mask for a situation inconsistent with the antitrust laws.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

Although the precise scope of antitrust review may vary from case to case, it is not limited to consideration of the consequences of construction and operation of the facility to be licensed, and indeed must in every case include the "relationship of the specific nuclear facility to the applicant's total system or power pool." *Waterford I*, CLI-73-7, 6 AEC at 49; *Waterford II*, CLI-73-25, 6 AEC at 621.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

Where it is necessary to correct a situation inconsistent with the antitrust laws which would be created or maintained by licensing a nuclear power generating facility, the Commission may condition the license to require the licensee to wheel a reasonable amount of supplemental power to another utility entitled to access to that facility.

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

A petition to intervene seeking to raise antitrust contentions must set forth with particularity facts which describe (1) the petitioner's interest; (2) a situation inconsistent with the antitrust laws or their underlying policies; (3) the existence of a meaningful nexus between the activities under the nuclear license and that "situation"; and (4) the specific relief sought, including whether, how and to what extent any license conditions proposed by the Attorney General fail to provide the relief requested. A failure to do so with the requisite specificity requires a denial of the petition.

DECISION

June 30, 1975

The applicant Kansas Gas and Electric Company seeks review of a Licensing Board order[1] granting intervention and a hearing to Kansas Electric Cooperatives, Inc., on its allegation that licensing the Wolf Creek nuclear power

[1] LBP-75-13, NRCI-75/3, 268 (1975). Although the appeal is taken as well in the name of the co-applicant Kansas City Power and Light Company, as will be seen the controversy does not directly involve that utility. For this reason, we are treating the Kansas Gas and Electric Company as the sole appellant and all references in this opinion to the "applicant" are to it.

generating facility would "create or maintain a situation inconsistent with the antitrust laws" within the meaning of section 105c(5) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2135(c)(5). For purposes of this interlocutory appeal under 10 C.F.R. §2.714a we accept the facts pleaded in the petition to intervene;[2] the essential ones are these:

The Wolf Creek facility is a joint proposal of the applicant and its neighboring utility and co-applicant, Kansas City Power and Light Company. The facility would have a generating capacity of 1180 Mw, to be shared by the two companies. The applicant's total system capacity was 1634 Mw in 1973; thus when in operation, Wolf Creek would increase applicant's electric power generating capacity by more than a third.

As the Act requires, the Commission[3] referred the joint application to the Attorney General of the United States for his advice and recommendations on possible antitrust ramifications.[4] That official responded with a letter advising the Commission that, in his judgment, the addition of certain license conditions would satisfy section 105c and render an antitrust hearing unnecessary. The Attorney General's proposals were acceptable to the two applicants.

Relevant to the issues on appeal are the recommended conditions applicable to the Kansas Gas and Electric Company.[5] Among other things, those conditions impose three obligations upon the applicant insofar as the cooperative is concerned. First, the applicant must offer the cooperative the right to purchase an ownership interest with a share in the power generated by the Wolf Creek facility or, at the cooperative's option, to sell it a portion of that power. Second, in the event of the partial or total unavailability of the cooperative's share of the Wolf Creek power, the applicant must, at the cooperative's option, either (a) supply the cooperative with an equivalent amount of power; or (b) transmit

[2] See *Duke Power Company* (Catawba Nuclear Station, Units 1 and 2), ALAB-150, 6 AEC 811, 812 (1973); *Mississippi Power and Light Company* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 424-26 (1973); and *Duquesne Light Company; et al.* (Beaver Valley Power Station Unit 1), ALAB-109, 6 AEC 243, 244-45 (1973). *Cf. City of Mishawka* v. *Indiana & Michigan Electric Co.*,__F. Supp.__, 1975 CCH Trade Cases Par. 60,318 (N.D. Ind. May 1, 1975) (motion to dismiss civil antitrust action for want of jurisdiction over the subject matter is decided on pleadings "and not the merits of plaintiffs' complaint.").

[3] The Atomic Energy Commission's responsibility to consider the antitrust aspects of a proposed project in performing its licensing functions under the Atomic Energy Act was transferred to this Commission by the Energy Reorganization Act of 1974 (Act of October 11, 1974, P.L. 93-438, 88 Stat. 1233, 42 U.S.C.A. §5801). For convenience, the references to the "Commission" in this opinion refer to either agency as the context requires.

[4] Section 105c(1), 42 U.S.C. §2135(c)(1).

[5] The Attorney General recommended different conditions for the co-applicant Kansas City Power and Light Company. Those conditions are not directly involved in this appeal.

across its lines, *i.e.*, "wheel",[6] that amount of power obtained by the cooperative from some other source. Third, the cooperative may elect to have a portion of its Wolf Creek power "wheeled out" by the applicant; *i.e.*, transmitted to some third party. If the cooperative makes this election, the applicant must "wheel in" an equivalent amount of power at the cooperative's request.[7] All of these conditions are contingent, however, upon the applicant being reimbursed for the costs entailed and upon the "transmission arrangements [being] reasonably accommodated from a functional and technical standpoint."

Pursuant to section 105c(5) of the Act, the Commission caused the Attorney General's advice letter, together with his recommended license conditions and the fact of their acceptance by the applicants, to be published in the *Federal Register.* 39 *F.R.* 44269 (December 23, 1974). That same notice invited persons whose interests might be affected to petition for intervention and to request a hearing on the antitrust aspects of the application.

The cooperative filed a timely petition to intervene and requested an antitrust hearing. Its petition alleged in substance that (1) it was engaged in distributing electric power to its 37 member cooperatives in rural Kansas, only one of which had some limited generating capacity of its own; (2) it had been offered an eight percent interest in the Wolf Creek facility by the applicant; (3) it desired to accept that offer and compete with the applicant in the sale of bulk power; but (4) it was effectively precluded from doing so by the terms of the applicant's offer (which included the conditions recommended by the Attorney General).

According to the petition, the heart of the cooperative's problem is its need for supplemental power and its inability to obtain that power from a source other than the applicant. Assertedly, operations with Wolf Creek power alone are not economically viable; consequently, without assured access to a source of supplemental power, the cooperative cannot obtain the financing it needs to secure an interest in the nuclear facility. The applicant, however, is the dominant electric utility and controls all the essential transmission facilities in the area; it refuses to wheel supplemental power to the cooperative. According to the petition, the practical effect of that refusal is to prevent the cooperative from gaining access to the nuclear facility, and accordingly, from competing with the applicant.

The Board below ruled that the cooperative's allegations relating to the applicant's conduct in refusing to wheel supplemental power "state antitrust

[6] "Wheeling" is a term of art in the electric power industry which refers to the "transfer by direct transmission or displacement [of] electric power from one utility to another over the facilities of an intermediate utility." *Otter Tail Power Co.* v. *United States,* 410 U.S. 366, 368 (1973).

[7] This obligation is subject to a calendar year limitation; *i.e.*, the applicant need "wheel in" in any given calendar year only that amount of power which was "wheeled out" in that year.

implications sufficient to require development at an evidentiary hearing." NRCI-75/3 at 271.[8] It therefore granted the cooperative's petition to intervene and ordered such a hearing held. *Id.* at 272.[9] This appeal by the applicant Kansas Gas and Electric Company followed.

I

1. By virtue of section 105c of the Atomic Energy Act, the Commission may be called upon to determine whether its licensing the construction or the operation of any commercial nuclear power facility "would create or maintain a situation inconsistent with the antitrust laws." A license need not be withheld where it is determined that such a situation would be created or maintained, but the Commission may place conditions on the license designed to correct the anticompetitive situation. 42 U.S.C. §2135(c).

In its *Waterford* decisions, the Commission explained the reasons underlying its involvement in antitrust matters. "The requirement in section 105 of the Atomic Energy Act for prelicensing antitrust review reflects a basic Congressional concern over access to power produced by nuclear facilities." *Louisiana*

[8] In so ruling, the Board reasoned that the contention "relating to limitations on the right of the Cooperatives to the use of wheeling and transmission facilities of the applicant, is adequate to state antitrust implications sufficient to require development at an evidentiary hearing. Meaningful access to nuclear generated power on reasonable terms and conditions may well be denied the Cooperatives by limiting transmission to the extent that they have wheeled out a portion of their share of the generated power. If the need for supplemental power, including peaking, intermediate or emergency power, can only be met by purchases from the applicant, this could result in a practical foreclosure of the Cooperatives' options of obtaining bulk power from another utility, or from their own generation facilities. The resulting lack of necessary transmission would preclude access to coordinated development and the efficiencies of economies of scale." NRCI-75/3 at 271.

[9] The Licensing Board also found three other contentions enbraced within the cooperative's petition:

> 2. That a provision in the proposed conditions to the effect that wheeling is to be performed to the extent that it "can be reasonably accommodated from a functional and technical standpoint" is ambiguous, and would hinder the Cooperatives' efforts to obtain necessary wheeling;
>
> 3. That the proposed conditions fail to require that Kansas Gas and Electric sell adequate reserves to the Cooperatives on suitable terms; and
>
> 4. That the proposed conditions fail to specify that charges for the transmission service, to be rendered by the applicants, shall be in accordance with schedules filed with appropriate regulatory authorities.

NRCI-75/3 at 270.

We deal with contention No. 2 at p. 576, n. 38, *infra.* Contention No. 3 was rejected by the Board as not meeting the specificity requirements of the Commission's regulations (10 C.F.R. §2.714(a)), the correctness of that ruling is not challenged here; contention No. 4 has been mooted by applicant's acquiescence in the relief sought by the cooperative. See Applicant's Reply Brief, pp. 35-36, and App. Tr. pp. 76-77.

Power and Light Company (Waterford Steam Electric Generating Station, Unit 3), CLI-73-7, 6 AEC 48-49 (1973) (*Waterford I*). The antitrust responsibilities placed on the Commission are "a Congressional recognition that the nuclear industry originated as a Government monopoly and is in great measure the product of public funds. It was the intent of Congress that the original public control should not be permitted to develop into a private monopoly via the AEC licensing process, and that access to nuclear facilities be as widespread as possible." *Louisiana Power and Light Company* (Waterford Steam Electric Generating Station, Unit 3), CLI-73-25, 6 AEC 619, 620 (1973) (*Waterford II*).

The applicant does not, of course, contest that the Commission has a role to play in the evaluation of the antitrust implications of licensing the construction of the proposed Wolf Creek facility. It contends, however, that the Licensing Board erred in concluding that such role extends to the consideration and determination, on the basis of a formal adjudicatory record, of the specific issues which the cooperative has sought to raise in its intervention petition.

2. Two situations call for licensing board hearings under section 105c on antitrust issues. The first is tied to the Commission's statutory obligation to seek the Attorney General's advice on the antitrust ramifications of each license application. Where that official advises that granting an application may involve adverse antitrust consequences and recommends that a hearing be held, the Commission is bound to follow his recommendation. Section 105c(1)–(5) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2135(c)(1)–(5); *Duke Power Company* (Catawba Nuclear Station, Units 1 and 2), CLI-74-14, 7 AEC 307 (1974).[10] In the case at bar, the Attorney General recommended that no hearing would be necessary provided the Commission inserted specified conditions in the Wolf Creek license. The suggested conditions were ones which the Attorney General believed adequate to assure smaller utilities in the applicants' service area access to power produced by that nuclear facility. See pp. 562-563 above. The applicants have agreed to those conditions; consequently, no hearing is needed insofar as the Attorney General is concerned if they are included among the terms of the license.

The second situation which may necessitate a formal antitrust proceeding—and the one with which we are concerned here—is described in the Joint Committee Report which accompanied the enactment of section 105c in 1970.[11] In the case where the Attorney General does not recommend a hearing "but antitrust issues are raised by another in a manner according with the

[10] See also S. Rep. No. 91-1247 and H.R. Rep. No. 91-1470, 91st Cong., 2nd Sess., p. 30 (1970) (Reports of the Joint Committee on Atomic Energy on Amending the Atomic Energy Act of 1954 to Provide for Prelicensing Antitrust Review of Production and Utilization Facilities, *inter alia*) (hereinafter the "Joint Committee Report"). The precise scope of the hearing to be conducted if the Attorney General recommends one, however, is a matter which the Commission has said to be within its discretion. *Catawba, supra*, 7 AEC at 309, n. 3.

[11] See n. 10, *supra*.

Commission's rules or regulations, the Commission would [then] be obliged to give such consideration thereto as may be required by the Administrative Procedure Act and the Commission's rules or regulations."[12]

As the phrasing of the Report implies, a hearing is not automatic simply because an intervention petition is filed. Rather, the relevant Commission regulations, 10 C.F.R. §2.714(a) and (b), direct any party desiring leave to intervene in a licensing proceeding to submit a timely petition "setting forth with particularity both the facts pertaining to his interest and the basis for his contentions with regard to each aspect on which he desires to intervene." Those regulations also caution parties seeking to intervene that a "petition that sets forth contentions relating only to matters outside the jurisdiction of the Commission shall be denied." Furthermore, where antitrust contentions are sought to be raised, the Commission has stressed that section 2.714 requires the petitioner to "plead ... a meaningful nexus between the activities under the nuclear license and the 'situations' alleged to be inconsistent with the antitrust laws." This is necessary because the Commission has interpreted section 105c to mean that "[i]f activities relating to a facility have no substantial connection with alleged anticompetitive practices, there is no need for a hearing ...." *Waterford II, supra,* 6 AEC at 621.

3. Applicant urges two grounds for reversing the decision below granting intervention and ordering an antitrust hearing. The first is that the cooperative's intervention petition fails to allege an "anticompetitive situation," *i.e.*, facts demonstrating that granting the license to construct the Wolf Creek nuclear facility would either create or maintain a situation inconsistent with the antitrust laws. Br. p. 4. The second is that, even assuming anticompetitive conduct to have been adequately alleged, the petition fails to demonstrate a "nexus" between that conduct and the activities to be licensed. *Ibid.* It is the applicant's position that both the conduct complained of and the relief sought "fall outside the scope of the Commission's antitrust jurisdiction." Reply Br., p. 7.

We explore first in Part II the reach of the Commission's antitrust jurisdiction. We then examine in Part III whether the cooperative's intervention petition properly raises matters within that jurisdiction.

II

Applicant's jurisdictional position rests on its understanding of section 105c of the Atomic Energy Act. As we have noted, the pertinent portion of that provision requires the Commission in certain circumstances to determine before licensing a nuclear power facility "whether the activities under the license would create or maintain a situation inconsistent with the antitrust laws." The applicant focuses on the phrase, "activities under the license." It contends, in essence, that these are words of art defining the limits of the Commission's antitrust jurisdiction and, moreover, were intentionally used by the Congress to

[12] Joint Committee Report, p. 30.

narrow that jurisdiction. As a consequence, says the applicant, section 105c limits the Commission's antitrust responsibilities to investigating only those anticompetitive practices which have a "causal connection" with the activities sought to be licensed. (Reply Br., pp. 7 *et seq.*).

In this case, the applicant has offered to sell the cooperative an interest in the Wolf Creek facility. By so doing, the applicant claims, it will have adequately provided the "access" to nuclear power that Congress was concerned not be foreclosed to smaller companies in the electric power field.

The cooperative's rejoinder is that the applicant's offer is illusory. The cooperative stresses that the applicant controls the essential high voltage transmission lines in its service area and asserts a refusal to "wheel" to the cooperative the supplemental power needed to make effective economic use of the base power which the nuclear plant would provide.[13] This refusal, the cooperative says, is part of a design to prevent the cooperative from competing with the applicant by precluding the cooperative's acquisition of any interest in the nuclear facility. This result is assertedly ineluctable. The cooperative alleges that without the right to have supplemental power wheeled in, it cannot demonstrate to the financial community that it will be able to use the nuclear generated power in an economically viable manner and, consequently, will not be able to borrow the money it needs to purchase a share of the nuclear plant.

Under the applicant's construction of section 105c we must ignore the cooperative's allegations in deciding whether the Wolf Creek plant should be licensed. This would follow because the applicant's refusal to wheel supplemental power has no "causal connection" with its proposed operation of the nuclear plant; it currently refuses to wheel that power and evidently will continue that policy.[14] This understanding of applicant's position was confirmed in oral argument before us (App. Tr. 121):

> What we are saying here is we are [providing] sufficient conditions to assure that [the cooperatives] have full physical access to this plant and its power from it, and insofar as any utilization is concerned, which may even be anticompetitive, we have isolated the nuclear plant and the generation of power from it by virtue of license conditions which provide full access to that nuclear plant. And in so doing, we limit the jurisdiction of this particular Commission to go further.

In short, if we accept applicant's reading of the Act, we must ignore the allegation that the only reason for applicant's refusal to wheel supplemental power is to prevent the cooperative from effectively using the nuclear power to compete with it. Consequently, the remedy (if any) for this situation would lie in the courts and not in the Commission. We do not agree. In our judgment, the applicant's contentions are at odds with the wording of the statute, unsupported

[13] As we have noted, the applicant has not refused all wheeling; it is the obligation to wheel supplemental power which is at issue between the parties. See pp. 562-563, *supra*.

[14] Applicant's Reply Br., p. 30; App. Tr. 116.

by the legislative history, and inconsistent with the decisions of this Commission.

1. That the antitrust laws represent a fundamental national economic policy is scarcely debatable. *Gulf States Utilities Co.* v. *F.P.C.*, 411 U.S. 747, 759 (1973); *Carnation Co.* v. *Pacific Westbound Conference*, 383 U.S. 213, 218-19 (1966). For this reason, even where regulatory agencies are not expressly required by the statutes they administer to consider the antitrust implications of cases before them, the courts have held them to be nevertheless obliged to take full account of those laws and their underlying policies before acting. *Gulf States Utilities Co.* v. *F.P.C.*, *supra*, 411 U.S. at 759-61; *California* v. *F.P.C.*, 369 U.S. 482, 484-85 (1962); *City of Pittsburgh* v. *F.P.C.*, 237 F. 2d 741 (D.C. Cir. 1956). And where Congress has explicitly mandated the type of conduct to be screened for anticompetitive effects, attempts to limit the scope of that obligation by giving a narrow or artificial meaning to the statutory terms have been rejected. *E.g.*, *Volkswagenwerk* v. *F.M.C.*, 390 U.S. 261 (1968).

The applicant in the case at bar would have us construe "activities under the license" in section 105c as foreclosing inquiry into whether it has engaged in anticompetitive conduct which is not traceable immediately and directly to operations of the licensed nuclear facility itself. It maintains this position even though such conduct might enhance its ability to use nuclear-generated power to the disadvantage of competitors. The cases cited above cut against giving section 105c such a narrow and in our judgment artificial reading. Moreover, the section cannot be fairly read to bear the meaning applicant ascribes to it.

The words of the statute upon which the applicant relies direct the Commission to consider not only whether granting a license would "create" an anticompetitive situation but also whether it would "maintain" one. Thus, to the extent the applicant's argument suggests that the Commission's cognizance under section 105c is limited to anticompetitive consequences directly attributable to applicant's use of the nuclear plant and its output, it makes no sense. As the staff points out,[15] for activities under a license to "maintain" a pre-existing situation inconsistent with the antitrust laws, some conduct of the applicant apart from its license activities must have been the "cause" for bringing about those anticompetitive conditions. Nothing in section 105c suggests that Congress wanted the Commission to focus on an applicant's extra-license conduct when determining whether an anticompetitive situation would be "maintained," but to close its eyes to that conduct in deciding whether such a situation would be "created." Indeed, were we to accept the dichotomy inherent in the applicant's position, we would be at a loss to perceive how a licensing board should proceed when it is alleged—as it is in this case[16]—that granting a construction permit would both create *and* maintain an anticompetitive situation. There is, of course, a settled presumption against imputing to Congress an intent to achieve an

[15] Supplemental brief, p. 5. This brief parallels arguments made by the Antitrust Division of the Department of Justice in other antitrust proceedings.

[16] See KEC Petition to Intervene, paras. 25, 26 and 36.

irrational result.[17] We are particularly disinclined to go against that presumption where another, more sensible reading of the provision in question is suggested by its legislative history.

2. The phrase "activities under the license" is defined neither in section 105 nor elsewhere in the Atomic Energy Act. The "Section-by-Section Analysis" portion of the Joint Committee Report, however, does contain one direct illustration of what was meant by that phrase. Though brief, the illustration illuminates with reasonable clarity the general bounds within which the Joint Committee expected the Commission to exercise its prelicensing antitrust review.

The explanatory material to which we refer follows a discussion in the Joint Committee Report of the antitrust "standard" to be applied by the Commission in judging anticompetitive conduct. (Joint Committee Report, p. 31). After observing that the standard selected is one of "reasonable probability" that a situation inconsistent with the antitrust laws is involved—in contradistinction to absolute "certainty" on one hand or mere "possibility" on the other—the Report continues in pertinent part (*ibid.*):

> The standard pertains to the activities of the license applicant. The activities of others, such as designers, fabricators, manufacturers, or suppliers of materials or services, who, under some kind of direct or indirect contractual relationship may be furnishing equipment, materials or services for the licensed facility would not constitute "activities under the license" unless the license applicant is culpably involved in activities of others that fall within the ambit of the standard.

Although the phrase is given passing mention elsewhere in the Report, this passage embodies the Joint Committee's only direct discussion of the intendment of "activities under the license." We may reasonably assume, therefore, that the illustration contained in that quotation is exemplary of the intended purpose of those words. In our judgment, two conclusions may properly be drawn from the statutory phrase as illuminated by the Committee's discussion. First, the Joint Committee expected the Commission to concentrate its antitrust scrutiny on the activities of license applicants before it and not to concern itself with anticompetitive conduct in other branches of the electric power industry (*e.g.*, vendors, manufacturers, *etc.*) except where the applicant was implicated in that conduct. Second, as the Commission's antitrust responsibilities are linked to license applications, the Commission's antitrust mandate extends only to anticompetitive situations intertwined with or exacerbated by the award of a license to construct or operate a nuclear facility.

In reaching these conclusions we have carefully combed the legislative history of section 105, including the portions relied on by the applicant. We find

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[17] See *Yankee Network* v. *F.C.C.*, 107 F.2d 212, 219 (D.C. Cir. 1939), and cases there cited.

there no support for applicant's theory, refined at oral argument (App. Tr. 121), that, by offering "physical access" to a nuclear plant and its power, an applicant limits the Commission's antitrust jurisdiction to scrutinizing the operations of that plant in isolation. Rather, the portions of the Hearings the applicant cites to us address such matters as the extent of the Commission's jurisdiction over the nuclear supply industry,[18] or the legal standard for testing whether given conduct is "inconsistent with the antitrust laws" or would "tend to" be in violation thereof.[19] It also appears that the applicant has misapprehended material it relies on from the Joint Committee Report itself. We alluded earlier to the Committee's discussion in that Report of the meaning of the key statutory phrase "activities under the license." (See p. 569, *supra*). The applicant, however, quotes from another section of that Report as also bearing on this subject (see Reply Br., p. 19). The applicant is mistaken; the paragraphs it cites are actually part of the Committee's discussion of the quantum of proof required to support a Commission finding of a "situation inconsistent with the antitrust laws," quite a different matter. This is manifest in reading the entire passage, which we set out in the margin below.[20]

Our search through the legislative history also leads us to reject applicant's suggestion (see App. Tr. 18) that considerations of "wheeling" supplemental electric power were meant to be ignored by the Commission in determining the

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[18] *E.g.*, testimony by AEC General Counsel Hennessey, Hearings, pt. 1, at p. 97; by Assistant Attorney General McLaren (*Id.* at p. 144) (App. Reply Br., pp. 14-15).

[19] *E.g.*, submission of the Assistant Attorney General, Antitrust Division, Hearings, pt. 2 at pp. 365-66 (App. Reply Br., pp. 15-16).

[20] Joint Committee Report, p. 14 (portions omitted from applicants' brief are underscored):

> The committee is recommending the enactment of prelicensing review provisions which—as in the proposed Atomic Energy Act of 1954 that the Joint Committee originally reported out, and as is in the version of subsection 105c that the Senate passed on July 27, 1954—do not stop at the point of the Attorney General's advice, but go on to describe the role of the Commission with respect to potential antitrust situations.
>
> *The legislation proposed by the committee provides for a finding by the Commission "as to whether the activities under the license would create or maintain a situation inconsistent with the antitrust laws as specified in subsection 105a." The concept of certainty of contravention of the antitrust laws or the policies clearly underlying these laws is not intended to be implicit in this standard; nor is mere possibility of inconsistency. It is intended that the finding be based on reasonable probability of contravention of the antitrust laws or the policies clearly underlying these laws.* It is intended that, in effect, the Commission will conclude whether, in its judgment, it is reasonably probable that the activities under the license would, when the license is issued or thereafter, be inconsistent with any of the antitrust laws or the policies clearly underlying these laws.

existence of an anticompetitive situation or as a possible license condition to remedy such a situation. On a number of occasions during the course of the 1969 hearings on amending section 105, the asserted need of smaller utilities to have low cost power wheeled to them across the lines of larger companies was brought to the attention of the Joint Committee.[21] Indeed, the full complaint drafted by the Justice Department in the *Otter Tail* litigation[22]—which made specific reference to the anticompetitive consequences of one utility's refusals to wheel power—was not only submitted to the Committee but the Committee had it reprinted in full. See Hearings, pt. 1 at pp. 78-80. So, too, was the District of Columbia Circuit's decision in the *Municipal Electric Association* case, which, in the context of another statute, dealt with a refusal to wheel nuclear power from the *Vermont Yankee* reactor.[23] Hearings, pt. 1 at pp. 254-69. There is no reference—much less objection—in the Joint Committee Report to Commission consideration of problems of this nature. We therefore see no occasion to read such a proscription into section 105c. If, as the applicant implies, there existed a desire on the 91st Congress' part to withdraw judicially recognized anticompetitive aspects of refusals to wheel power from Commission antitrust scrutiny, or to forbid license conditions affording such relief, that desire is not articulated in the legislative history.

Certainly the statute itself manifests no such intent. Section 105c(6) simply directs the Commission to place "appropriate" conditions on licenses where necessary to rectify anticompetitive situations. This is an invocation of the Commission's discretion, not a limitation on its powers. Had Congress wished to do the latter, it would have said so in unmistakable terms. To give one example, where the legislature desired to limit the Secretary of Agriculture's right to condition orders promulgated by him to regulate the marketing of farm produce,

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[21] See, *e.g.*, Hearings, pt. 1, at pp. 10 (Remarks of Mr. Donnem, Antitrust Division, Department of Justice); 77 (AEC General Counsel Hennessey); 254; and pt. 2 at 425 (Mr. Charles Robinson, National Rural Electric Cooperative Association).

[22] *Otter Tail Power Co.* v. *United States*, 410 U.S. 366 (1973), affirming 331 F. Supp. 54 (D. Minn. 1971), held that a utility company's unjustified refusal to wheel where its control of transmission facilities precluded a potential competitor from obtaining low cost power otherwise may violate the antimonopoly provisions of the Sherman Act, 15 U.S.C. §§1 and 2. The Sherman Act is, of course, one of the antitrust statutes whose policies the Commission is specifically directed to further by section 105c. See 42 U.S.C. §§2135(a) and 2135(c)(5), and Joint Committee Report, p. 14.

[23] *Municipal Electric Association of Mass.* v. *S.E.C.*, 413 F.2d 1052 (D.C. Cir. 1969), is a decision under the Public Utility Holding Company Act. The court of appeals held in that case that the S.E.C. must consider the anticompetitive effects of an investor-owned utility's refusal to wheel nuclear-generated power to a competing municipal utility before approving the former's acquisition of the stock of the company generating the nuclear power. See 413 F.2d at 1058-60.

Congress specified that "... orders issued pursuant to this section [of the Agricultural Marketing Agreement Act] shall contain one or more of the following terms and conditions, and ... no others". 7 U.S.C. §608c(5). See *Zuber* v. *Allen*, 396 U.S. 168, 183-84 (1969).[24]

Accordingly, we conclude that the legislative history of section 105c does not support the applicant's argument that the Commission must consider the operations of each nuclear plant in isolation when making its prelicensing antitrust review. On the contrary, the Commission's statutory obligation is to weigh the anticompetitive *situation*—which to us means that operations in an "air tight chamber" were not intended.[25] A review conducted under the artificial restraints suggested by the applicant would allow long understood and well recognized patterns of anticompetitive conduct to evade Commission notice. It is far too late in the day to dispute that it runs counter to basic antitrust precepts to exercise monopoly power—however lawfully acquired initially—to foreclose competition or to gain competitive advantage, or to use dominance over a facility controlling market access to exclude competition and preserve a monopoly position.[26] Electric utility companies are no more free than others to engage in those practices; their unjustified refusals to wheel power to or to interconnect with smaller entities in the field have regularly been called to account as violative of antitrust policies.[27] It was a key purpose of the prelicense review to "... nip in the bud any incipient antitrust situation."[28] We can therefore perceive no valid reason why the Commission should wear blinders when confronted by such matters. No statute should be construed to render it

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[24] The applicant's reply brief and the staff's supplemental brief each review the series of bills introduced prior to the enactment of section 105c which sought to treat the Commission's antitrust jurisdiction. Those briefs would have us draw widely divergent conclusions from the same materials. We think this but confirms our judgment that no pattern or consensus can be extracted from those proposals, and certainly none with the clarity necessary to warrant disregard of the actual statutory language and the example of its intendment given by the Joint Committee, to which we adverted earlier.

[25] See *Conway Corporation* v. *F.P.C.*, 510 F.2d 1264, 1272 (1975), where the District of Columbia Circuit rejected an argument analogous to applicant's made under the Federal Power Act.

[26] See *United States* v. *Terminal Railroad Association*, 224 U.S. 383 (1912); *Associated Press* v. *United States*, 326 U.S. 1 (1945); *United States* v. *Griffith*, 334 U.S. 100 (1948); *Silver* v. *New York Stock Exchange*, 373 U.S. 341 (1963); *United States* v. *Grinnell Corp.*, 384 U.S. 563 (1966).

[27] *See Gulf States Utilities Co.* v. *F.P.C.*, *supra*; *Otter Tail Power Co.* v. *United States*, *supra*; *Gainesville Utilities* v. *Florida Power Corp.*, 402 U.S. 515 (1971). See also Meeks, *Concentration in the Electric Power Industry: The Impact of Antitrust Policy*, 72 Colum. L. Rev. 64 (1972) and cases there cited.

[28] Joint Committee Report, p. 14.

ineffective.[29] Undoubtedly there are outer limits to the Commission's antitrust jurisdiction. But there is nothing lurking in the background of section 105c of the Atomic Energy Act to place it beyond this agency's power to look behind an offer of "access" to a nuclear facility to see if it is *bona fide* or, because of the offeror's concurrent refusal to wheel power, but a mask for a situation inconsistent with the antitrust laws.

3. We also find the applicant's arguments to be at war with the Commission's decisions. The Commission has never considered itself limited under section 105c to evaluating the anticompetitive aspects of any nuclear facility *in vacuo*. On the contrary, the Commission has reiterated that far more is required of it by that provision. In *Waterford I, supra,* although commenting that investigation of every aspect of an applicant's electric generation, transmission and distribution activities would not always be required, the Commission explicitly stated that " 'activities under the license', in most circumstances, would *not* be limited to construction and operation of the facility to be licensed." 6 AEC at 49 (emphasis added). Again, in *Waterford II, supra,* the Commission stated that, though the precise scope of antitrust review may vary from case to case in other respects, nevertheless "[t]he relationship of the specific nuclear facility to the applicant's total system or power pool should be evaluated in every case." 6 AEC at 621.

To be sure, as the applicant points out, in *Waterford II* the Commission acknowledged that denial of access to transmission systems would be more appropriate for consideration where the lines were erected concurrently with a nuclear unit than where they pre-existed the facility. The Commission went on to state, however, that such matters "could certainly be considered in appropriate cases." *Ibid.* Thus, far from representing a Commission disavowal of any right to consider access to transmission systems, the Commission's *Waterford* decisions represent an affirmation of that jurisdiction.

4. In closing this portion of our opinion, we stress the circumscribed nature of the issue we are called upon to decide. It is to be recalled that the applicant has acquiesed in the freighting of its license with the condition that it wheel some power for the cooperative (see pp. 562-563, *supra*). Specifically, the applicant has agreed to "wheel out" the cooperative's share of "nuclear" power (*i.e.*, power generated by the Wolf Creek plant) and, to the extent it has wheeled out Wolf Creek power, to "wheel in" power from "non-nuclear" sources for the cooperative. The applicant thus tacitly concedes that the Commission has "jurisdiction" to condition its license to require the wheeling of power from both nuclear and non-nuclear generating sources. What is left for us to decide is this: Where necessary to correct a situation inconsistent with the antitrust laws created or maintained by a nuclear powered generating facility, may the

[29] *United States* v. *Blasius*, 397 F.2d 203, 207 n.9 (2nd Cir. 1968), certiorari dismissed, 393 U.S. 1008 (1969).

Commission grant the license for that facility with a condition that the licensee also wheel a reasonable amount of supplemental power to another utility entitled to access to that facility. We answer that question affirmatively for the reasons we have assigned.[30]

III

In the preceding portion of our opinion, we have discussed our reasons for agreeing with the Board below that the cooperative's petition to intervene attempts to raise issues within the perimeter of the Commission's antitrust jurisdiction. As the applicant reminds us, however, whether the petition is sufficient under the Commission's rules to invoke that jurisdiction and precipitate a full antitrust hearing is another question. We turn to it now.

The Commission insists that a prospective intervenor articulate the basis of his interest clearly and, moreover, specify the focus of the desired hearing with particularity before he is entitled to be admitted to the proceeding; the right to require such specificity is now authoritatively settled. *BPI* v. *Atomic Energy Commission*, 502 F.2d 424 (D.C. Cir. 1974). Accordingly, under the governing regulations, one seeking leave to intervene must file a petition that states "with particularity both the facts pertaining to his interest and the basis for his contentions with regard to each aspect on which he desires to intervene." 10 C.F.R. §2.714(a). The purpose of the regulation is to "establish that there is an 'issue' to be presented [by the intervenor] and determined (by a licensing board) in the proceeding."[31]

Where an intervenor proposes to raise antitrust matters, the Commission has elucidated its regulations to make clear, first, that his petition "must describe a situation inconsistent with the antitrust laws" (*Waterford I, supra*, 6 AEC at 49); second, that "[a] description of a situation inconsistent with the antitrust laws—however well pleaded—accompanied by a mere paraphrase of the statutory language, alleging that the situation would be created or maintained by

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[30] Our conclusion accords fully with the Attorney General's understanding of this Commission's antitrust jurisdiction. We note that the Attorney General recommended—and co-applicant Kansas City Power and Light Company has agreed to accept—a condition in the Wolf Creek license which would require KCPL to "wheel bulk power on behalf of others." See 39 *F.R.* at 44270 and KCPL Licensing Condition 5(a), *id.* at 44271.

Moreover, the applicant's contrary assertions notwithstanding (App. Tr. 125), as thus construed that jurisdiction manifestly neither entails nor portends a restructuring of the entire electric utility generating industry.

[31] See *Northern States Power Company* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-107, 6 AEC 188, 192, affirmed by the Commission, CLI-73-12, 6 AEC 241 (1973), affirmed *sub nom. BPI* v. *Atomic Energy Commission, supra* (1974).

the activities under the license, would be deficient" (*Waterford II, supra,* 6 AEC at 621 n. 2); and, third, that the petition must "identify the specific relief sought . . . and whether, how and the extent to which the request fails to be satisfied by the license conditions proposed by the Attorney General" (*Waterford I, supra,* 6 AEC at 49). Properly complied with, those strictures should result in a petition to intervene that will, lucidly and unambiguously, "give notice to the tribunal and adverse parties of the ultimate facts and matters of law asserted." *Alabama Power Company* (Alan R. Barton Nuclear Plant, Units 1-4) LBP-75-32, NRCI-75/6, 612 (June 13, 1975).[32]

In the normal course, it falls to the licensing boards to determine in the first instance whether an intervention petition sets forth at least one contention with the requisite specificity. *Alabama Power Company* (Joseph M. Farley Nuclear Plant Units 1 and 2), ALAB-182, 7 AEC 210, 216-17 (1974). In the case at hand, the Board below judged the cooperative's petition to have been drafted with something less than "meticulous regard" for the Commission's intervention rules. Nevertheless, it ultimately concluded that, as reframed by the staff and accepted by the cooperative, the petition's contention relating to the sufficiency of the cooperative's right to use of the applicant's wheeling and transmission facilities was adequately stated. NRCI-75/3 at 270-71. The Board also appeared to find acceptable a second contention that drew in question whether the term "function" was ambiguously used in one of the Attorney General's conditions relating to the limited wheeling rights he recommended. *Ibid.*[33] With all deference to the Board below, we cannot agree.

Our dissatisfaction with the petition to intervene is not bottomed, as is the applicant's, on any absence of "nexus." As should be manifest from our discussion in Part II, above, we find the cooperative's petition reasonably clear about how the "situation" complained of relates to the licensing of the Wolf Creek facility. What troubles us, however, is the petition's imprecision regarding how that "situation" conflicts with the relevant antitrust laws and policies. We also find lacking in that document the requisite "identification ... of the specific relief sought" by the cooperative.

Read most favorably to the cooperative, the petition's "wheeling" contention appears to be an attempt to assert a situation inconsistent with the Sherman Act[34] not unlike that involved in the *Otter Tail* litigation; that is to say, the petition seems to be alleging a case of improper use of monopoly power. But there are obvious distinctions between that case and this. For example, here we have not one but two utilities. They are involved in a joint venture to build and operate Wolf Creek; both are named in the petition to intervene. Does the cooperative mean to assert that the two are engaging in some anticompetitive

[32] Thus, in NRC licensing proceedings in general, and in section 105c proceedings in particular, the "notice pleading" allowed in the federal courts is insufficient.

[33] Two other contentions were either rejected or mooted. See n. 9, *supra,* p. 564.

[34] 15 U.S.C. § 1 and 2.

combination in restraint of trade forbidden by 15 U.S.C. §1? Or are they accused of impermissible monopolistic conduct under 15 U.S.C. §2? Both may be inconsistent with Sherman Act policies.[35] We cannot, however, tell for certain which is being pressed.

Again, as we have noted, a refusal to wheel power may amount to a situation inconsistent with the antitrust laws. But does the petition mean to allege that the applicant has monopoly power in the relevant market[36] and that its refusal to wheel is an act designed to protect that status for foreclosing potential competition? Or is it claimed that the applicant is attempting thereby to monopolize all electric power generation in the area? Concededly both can be Sherman Act violations; however, their elements are not identical.[37]

The Commission also directed in *Waterford I* that a petition to intervene be specific about the relief sought. Notwithstanding that fact, the cooperative's pleading tells us only that the license should be conditioned to have the applicant "provide petitioner with satisfactory terms and conditions relating to wheeling-in, reserves, and other aspects of the project which will allow petitioner an effective, meaningful opportunity to participate in the project." (KEC petition, par. 37). What terms would be "meaningful" in that context? "[T]erms and conditions substantially better than and additional to those proposed by the Department [of Justice]" is the only clue we find in the petition (par. 35). That casts scant (if any) light on the details of the relief sought. This vagueness is evidently not attributable to the cooperative's failure to know what it wants. The applicant has brought to our attention the fact that the cooperative is, apparently demanding an ownership interest in the applicant's transmission lines. See App. Tr. 115-16. If that be true (it was not denied at oral argument), that fact should plainly have been stated in the petition.

We hardly need go further to make our point. The applicant is entitled to a fair chance to defend. It is therefore entitled to be told at the outset, with clarity and precision, what arguments are being advanced and what relief is being asked by the cooperative. So is the Board below It should not be necessary to speculate about what a pleading is supposed to mean.[38]

We can appreciate the difficulties a party may have where it must express in a petition to intervene technical matters beyond the ordinary grist for the legal mill. And we empathize with petitioners who must of necessity proceed *pro se*,

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[35] See, *e.g.*, *American Tobacco Co.* v. *United States*, 328 U.S. 781, 788 (1946).

[36] Indeed, what is the relevant market in suit? It could be any one of a number of possibilities. See Meeks, *Concentration in the Electric Power Industry: The Impact of Antitrust Policy supra*, n. 27 72 Colum. L. Rev. at 81, 94.

[37] See, *e.g.*, *Times-Picayune Pub. Co.* v. *United States*, 345 U.S. 594, 626 (1953); *United States* v. *Griffith*, *supra*, 334 U.S. at 105.

[38] We find the second contention—about the ambiguity of a term in one condition—no better. It may well be part of a "situation inconsistent with the antitrust laws." If it is, however, it is inadequately explained.

or with counsel new to the field (if not also to the bar). In those circumstances, the Commission has for good and sufficient reason allowed us and the licensing boards leeway in judging the sufficiency of intervention petitions.[39]

But this case is not of that genre. The petition bears the imprimatur of experienced counsel and is an attempt to trigger the litigation of antitrust issues. The basic antitrust averments required of a section 105c petition are not novel; essentially they track the elements material to cases under the various antitrust acts, statutes which have been on the books for decades. When those oft-litigated measures are being invoked, it is not overly much to expect of a petition that it do so with the clarity and specificity demanded by the Commission's regulations. This petition does not.

In sum, we think the Board was wrong to strain to discern the outlines of any contention in a petition as amorphous as this one.[40] Rather, the appropriate course was to deny intervention unless and until a properly drawn pleading were submitted. Accordingly the order of the Licensing Board is *vacated;* the cause is *remanded with instructions to dismiss the petition without prejudice to the submission of an amended petition sufficient to satisfy the requirements of the Commission's Rules of Practice.*[41]

It is so ORDERED

FOR THE ATOMIC SAFETY AND
LICENSING APPEAL BOARD

Margaret E. DuFlo
Secretary to the Appeal Board

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[39] See Dignan, *AEC Rules of Practice,* 16 Atomic Energy L.J. 3, 9-24 (1974).

[40] As we indicated at the outset of this opinion, n. 2, *supra*, our decision of course does not reach the merits of any of the allegations.

The Licensing Board should set a reasonable time limit for filing any amended petition; it need not be a long period. We defer, however, to that Board's judgment in the matter.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-30

ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Chairman
Dr. Richard F. Cole, Member
Dr. A. Dixon Callihan, Member

In the Matter of

BOSTON EDISON COMPANY, et al.

(Pilgrim Nuclear Generating Station, Unit 2)

Docket No. 50-471

June 6, 1975

Upon objections by various parties to discovery requests and motions for protective orders in construction permit proceeding, Board issues pre-hearing conference order which rules on unresolved discovery issues.

RULES OF PRACTICE: DISCOVERY

Since the Commission's rules of practice concerning discovery are based upon, and employ similar language to, the Federal Rules of Civil Procedure, guidance in construing the Commission's rules may be found in legal authorities and court decisions construing the Federal Rules.

RULES OF PRACTICE: DISCOVERY

Discovery, which is intended to insure that parties have access to all relevant unprivileged information prior to the hearing, has as its main objectives the more expeditious conduct of the hearing, the encouragement of settlement between the parties and greater fairness in adjudication.

RULES OF PRACTICE: DISCOVERY

Since discovery rules are to be interpreted broadly and liberally, inquiries thereunder are to be limited only by their reasonable relevancy to a sensible investigation.

RULES OF PRACTICE: DISCOVERY

Specification of the facts upon which a claim or contention is based is a permissible area of discovery.

RULES OF PRACTICE: DISCOVERY

A party objecting to a request for discovery has the burden of showing plainly and specifically why the information sought should not be made available—*e.g.*, that it is privileged, not relevant, or otherwise improper, or that its production would be unduly burdensome.

RULES OF PRACTICE: DISCOVERY

Answers to interrogatories must be complete, explicit and responsive; where only limited information is available, a party is not excused from responding but must answer to the best of its ability, noting that the response reflects such limited information.

RULES OF PRACTICE: DISCOVERY

If information sought through discovery is relevant and material, a party is not excused from furnishing such information on the ground that doing so would be burdensome and expensive; however, it is within a court's (or agency's) authority and discretion to issue orders to prevent oppression and avoid undue expense.

RULES OF PRACTICE: DISCOVERY

In determining the scope of permissible discovery, a Board must balance the interests and rights of the parties in obtaining information for the proper preparation of their cases against the rights of the parties in being protected against undue harrassment or burden.

MEMORANDUM AND ORDER

Pursuant to Notices issued by the Board on April 14 and April 28, 1975, a Further Special Prehearing Conference was held in this proceeding at Boston, Massachusetts on May 5, 1975. The Conference dealt with a review of the progress of discovery, the pending objections to discovery requests, the pending motions regarding such discovery procedures, and reports from the parties as to the progress made in consultations directed by the Board for a possible resolution of the pending objections on discovery.

As a result of the aforesaid consultations, the Board was informed that a number of the then pending objections and other disputes regarding the discovery process had been resolved amongst the parties. Accordingly, the Board heard oral argument by the parties in support of, and in opposition to the

remaining motions regarding objections and requests for protective orders as listed below.[1]

The basic subject matter of the oral argument at the Prehearing Conference dealt with the following pending matters: Applicant's and Staff's Interrogatories to Massachusetts Wildlife Federation (MWF), Intervenor, and the latter's objections thereto; Applicant's Interrogatories to Daniel Ford, Intervenor, and the latter's objections thereto; Joint Interrogatories of Intervenors Commonwealth of Massachusetts and Ford to Applicant (Sets 2 and 4) and the Applicant's objections thereto and motions for protective orders.[2]

Because of the broad and pervasive nature of the discovery requests filed by the respective parties in this proceeding, as well as the nature of the objections filed thereto, it would be useful, in the resolution of the pending questions, to indicate by way of background the general procedural and substantive legal principles governing the use of the discovery process in Commission proceedings.

The use of the discovery process is governed by the Commission's regulations contained in 10 CFR 2.740-2.744. Reference is also made to the discovery process in 10 CFR 2.707 dealing with the failure of parties to comply, *inter alia*, with discovery orders entered by the Board, pursuant to Section 2.740. The Commission's regulations are based upon and drawn generally from the Federal Rules of Civil Procedure governing discovery, Rules 26 through 33, and, in the main, employ language identical with, or similar to the language of the Federal Rules upon which the process is based. Accordingly, guidance may be had from the legal authorities and court decisions construing the Federal Rules on discovery.

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[1] Although there were, as of the date of the Prehearing Conference on May 5, a considerable volume of pleadings on discovery exchanged among the parties, covering separate sets of interrogatories, objections and motions, the oral argument at the Conference dealt in the main with the following unresolved pleadings: (1) Applicant's Interrogatories to Massachusetts Wildlife Federation (Set No. 1), dated March 18, 1975, Objections by Massachusetts Wildlife Federation, dated April 1, Applicant's Memorandum Re Massachusetts Wildlife Federation Objections, dated April 25; (2) Applicant's Interrogatories to Ford (Set No. 1), dated March 18, 1975; Ford's Objections to Interrogatories, dated April 3; Ford's Answers to Interrogatories and Document Request (Set No. 1) dated April 12, 1975; Applicant's Memorandum Re Ford Objections and Answers dated April 25, 1975; (3) Staff's Interrogatories to Massachusetts Wildlife Federation (Set No. 1), dated March 18, 1975; Objections by Massachusetts Wildlife Federation, dated April 1, 1975; (4) Joint Interrogatories of Commonwealth of Massachusetts and Ford to Applicant (Set No. 2), dated April 1, 1975; Applicant's Objections and Request for Protective Order, dated April 18, 1975; (5) Joint Interrogatories (Set No. 4), dated April 16, 1975; Applicant's Objections and Request for Protective Order dated May 2, 1975; Applicant's Objections to Joint Interrogatories dated May 5, 1975; Response to Applicant's Objections filed by Commonwealth of Massachusetts and Ford dated May 12, 1975.

[2] In a number of other instances, responses to requests for discovery by the parties had not yet come due, under the prevailing schedule in the Order of March 6, 1975, by the time the Prehearing Conference was held.

In general, it has been long recognized that discovery in litigation, as well as in agency adjudication, is intended to insure that the parties to the proceeding will have access to all relevant, unprivileged information prior to the hearing, and that the primary objectives of the discovery process include the more expeditious conduct of the hearing itself, the encouragement of settlement between the parties, and greater fairness in adjudication.[3] Likewise, it has been uniformly recognized that the discovery rules are to be accorded a broad and liberal treatment so that parties may obtain the fullest possible knowledge of the issues and facts before trial, and that the inquiries are limited only by the requirement that they be reasonably relevant to a sensible investigation.[4]

However, the authorities have also held that, as a rule of necessity, there must be limitations on the concept of relevancy so as "... to keep the inquiry from going to absurd and oppressive bounds."[5]

As to the permissible areas of discovery, the authorities are clear that interrogatories seeking specification of the facts upon which a claim or contention is based are wholly proper, and that the party may be required to answer questions which attempt to ascertain the basis for his claim or, for example, what deficiencies or defects were claimed to exist with respect to a particular situation or cause.[6] In this connection, *Moore* cites cases, as noted below, which have allowed discovery of scientific, economic and medical opinions, and questions which seek a party's contention as to technical matters.

In sum, the principles behind the discovery rules were succinctly articulated by the Supreme Court of the United States in the landmark case of *Hickman* v. *Taylor*, 329 U. S. 495, 91 L.Ed. 451 (1947) in the following language:

> We agree, of course, that the deposition-discovery rules are to be accorded a broad and liberal treatment. No longer can the time-honored cry of "fishing expedition" serve to preclude a party from inquiring into the facts underlying his opponent's case.[7] Mutual knowledge of all the relevant facts gathered by both parties is essential to proper litigation. To that end, either party may compel the other to disgorge whatever facts he has in his possession. The deposition-discovery procedure simply advances the stage at which the disclosure can be compelled from the time of trial to the period preceding it, thus reducing the possibility of surprise. But discovery, like all matters of procedure, has ultimate and necessary boundaries. As indicated by Rules 30 (b) and (d) and 31 (d), limitations inevitably arise when it can

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[3] See Administrative Conference Recommendation No. 21, *Discovery in Agency Adjudication*, adopted by the Administrative Conference of the United States, June 1970, 1 ACUS Reports 37; and Report of The Committee on Compliance and Enforcement Proceedings in Support of Recommendation No. 21, at 1 ACUS 577.

[4] See 4 *Moore, Federal Practice*, Section 26.55[1], p. 26-113, Note 9.

[5] See, e.g., *Porter* v. *Central Chevrolet, Inc.* (ND Ohio 1946) 7 FRD 86, cited in Moore, *supra*, at Section 26.56 [1], Note 70, p. 26-150.

[6] See *Moore, supra*, Section 26.56[3], at p. 26-167, and cases cited in the accompanying footnotes.

be shown that the examination is being conducted in bad faith or in such a manner as to annoy, embarrass or oppress the person subject to the inquiry. And as Rule 26 provides, further limitations come into existence when the inquiry touches upon the irrelevant or encroaches upon the recognized domains of privilege. (329 U. S. at pages 507-409)

[7] One of the chief arguments against the "fishing expedition" objection is the idea that discovery is mutual—that while a party may have to disclose his case, he can at the same time tie his opponent down to a definite position. Pike and Willis, "Federal Discovery in Operation," 7 U of Chicago L Rev 297, 303.

Turning now to the problem of the objections which have been filed with regard to the subject interrogatories, the authorities hold that objections should be plain enough and specific enough so that the court can understand in what way the interrogatories are claimed to be objectionable.[7] The courts have held that general objections are insufficient, and that the burden of persuasion is on the objecting party to show that the interrogatory should not be answered—that the information called for is privileged, not relevant, or in some other way not the proper subject of an interrogatory.[8] Further, it has been held that where a heavy burden would be imposed if a party were required to answer detailed interrogatories, a segregation and analysis of a great mass of material being necessary, or where data and information must be compiled and collated, the court as an alternative may require the interrogating party to "dig out and sift the information" by an examination of the other party's files.[9]

With regard to the matter of the sufficiency of answers to interrogatories, it has been held that answers to interrogatories must be complete, explicit and responsive. The courts have held that if a party cannot furnish information and details, it may so state under oath.[10]

A further critical principle involved in the current consideration of the parties' requests for discovery and objections thereto, and motions for protective

[7] See *Moore, supra,* Section 33.27, at pp. 33-151 to 33-153.

[8] *Ibid.*

[9] See *Moore, supra,* at pp 33-157-158 citing, *inter alia. U. S.* v. *American Locomotive Company* (ND, Ind. 1946) 6 FRD 35.

[10] See *Bar Harbor Theater Corp.* v. *Paramount Film Distribution Corp.* (ED. N. Y. 1961, 5 *FR* Serv 2nd 32d2), a case in which the Court stated "lack of complete or partial knowledge does not excuse failure to make timely answers to interrogatories. In the absence of such knowledge, the party served with interrogatories, unless relieved by the Court, must answer to the best of his ability and if he claims lack of information sufficient to answer an interrogatory, his answer thereto should be to that effect; if he claims to have less than full information at the time his answers are due, he should answer by giving the available information and by stating that the answer reflects the limited information that he then has." (Cited in *Moore, supra,* at p. 33-140, Note 3.)

orders, concerns the assertion that the interrogatories filed would require research and compilation of data and information not readily known to the party being interrogated. The voluminous number of cases dealing with the holdings of courts in this regard are summarized and discussed in *Moore* at Section 33.20, from which the authorities distill certain general principles. As is there pointed out, the fact that to answer interrogatories might be burdensome or expensive is not a valid objection if the information is relevant and material; however, the court has authority to make orders to prevent oppression and to avoid undue expense. *Moore* states that the cases hold that "Where the burden is heavy, where a segregation and analysis of a great mass of material was necessary or where data and information must be compiled and collated, some, and perhaps the greatest share, of that burden and effort should fall on the party seeking the information."[11] In general, it seems to be the weight of the holdings that, in the sound discretion of the court, a party may be protected against interrogatories where the answers would require an excessive or oppressive amount of research or compilation of data and at a great expense, although mere general objections that the interrogatories are onerous and burdensome are not sufficient. While a party must furnish in his answer to interrogatories whatever information is available to it, ordinarily it will not be required "to make research and compilation of data not readily known to him."[12]

In a discussion of cases in *Moore, supra,* it is pointed out that objections were sustained to interrogatories where the court held that "interrogatories under Rule 33 [interrogatories directed to a party to the litigation] were never intended to compel an adversary to search and analyze more than five million documents in order to furnish the answers." (*Riss and Company* v. *Association of American Railroads* [DDC 1959] 23 FRD 211)[13]

Against the background of the foregoing discussion of the governing legal principles, the Board will attempt to dispose of the pending objections and motions concerning the discovery process in this proceeding. It will be necessary to balance the interests and rights of the litigants to obtain information for the proper preparation of their cases, as against protecting, in the interest of fairness and justice, the rights of the adversary parties against undue harrassment or burden. In the words of the Supreme Court in the *Hickman* case, "Properly to balance these competing interests is a delicate and difficult task." *Hickman* v. *Taylor, supra,* at page 497.

It would appear that the parties on both sides of the issues in this case, in their zeal of advocacy of their respective positions, have demanded of their adversaries the production of information through interrogatories which, although not wholly irrelevant, may be overly broad, too detailed to be useful,

[11] See *Moore, supra,* cases cited at p.33-101, Note 4.

[12] *Ibid.,* at p 33-103, Notes 10-11.

[13] Similar holdings in various cases are discussed in *Moore* at pp. 33-109 to 33-114.

or not feasibly available to the extent and in the scope requested. Further, even if the information could be obtained through an excessive amount of research and at great expense, it appears, from the nature and scope of such interrogatories, that they would probably only yield information of such slight decisional significance and weight, and would be so remote in time and substance from the central issues in this case, as to "touch upon the irrelevant" (*Hickman*).

By the same token, the objections posed against such interrogatories must, in line with the authorities discussed above, be reasonable and specific, and may not utilize generalized "maxims" or recite legal rote. References to "the Applicant's burden of proof" as an objection, for example, are unavailing to avoid a party's obligation to respond to a proper discovery request for information in its possession.

Similarly, a refusal to respond based on a claim of awaiting further discovery, as a general objection, is not sufficient without specifying in what manner or what facts or what discovery requests are pending in that regard. In the same vein, it has been held that it is untenable to object to an interrogatory or to refuse to answer on the claim that involves "the work product of an attorney" or "the attorney-client relationship." The Supreme Court in *Hickman* stated that "A party clearly cannot refuse to answer interrogatories on the grounds that the information sought is solely within the knowledge of his attorney." *Hickman, supra,* at page 504.

It is pointed out in the annotation to the *Hickman* v. *Taylor* opinion, at 91 L.Ed. 467 that, in cases going back to 1844, the attorney-client privilege does not apply to the discovery of facts within the knowledge of the attorneys so long as those facts were not communicated or confided to him by his client, and that the privilege did not extend to information derived from other persons or sources even though the attorney acquired that information while engaging in his professional duty on behalf of his client.[14]

As has been stated, the Commission's Rules on intervention presume that the parties had specific factual bases for their contention, (See Section 2.714(a)). Where the discovery request seeks to elicit the factual basis for the contention, the intervenor cannot defend against such interrogatory by claiming that the facts are "privileged".[15] The discovery process seeks facts, and the old rule against discovery of "opinions and conclusions" has been superseded. Further, as has been indicated in the above quoted portion of the *Hickman* opinion, the "time honored cry of 'fishing expedition' can no longer suffice to preclude a party from properly inquiring into the facts underlying his opponent's case."

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[14] See also *Moore, supra* at p. 26.

[15] See *Moore, supra,* at p. 26-165.

RULINGS ON PENDING MOTIONS

Applying the foregoing principles, the Board will now rule generally on the pending motions and objections to the various discovery requests. The specific rulings on the interrogatories and respective objections by the parties will be addressed and disposed of in the *Attachment* hereto.

With regard to the interrogatories by the Applicant and the Staff to the Massachusetts Wildlife Federation and the latter's objections thereto, the Board is of the view that the objections stated in the general form contained in MWF's pleadings do not constitute tenable or proper objections, and, therefore, may not be sustained. As is indicated in the specific rulings in the *Attachment* hereto, MWF is directed to respond to the interrogatories to the extent it has information in its possession, regarding the factual bases for its contentions which were admitted in the proceeding. To the extent that MWF asserts that it has not yet retained experts, so that it cannot respond to a particular interrogatory requesting the bases for its contentions, it may so indicate.[15a] In accordance with Commission procedure, at such time as the information becomes available to it, it will be required, under the provisions of Section 2.742, to supply said information to the Applicant and the Staff. As has been indicated in the discussion of authorities above, the Board does not believe that MWF has a justifiable objection when it asserts that Applicant or Staff is seeking the "work product of the attorney" or that it is seeking to impinge upon Intervenor's attorney-client relationship.

With regard to Applicant's interrogatories to Intervenor Ford and his objections thereto, the Board is of the view that the Applicant is properly seeking the information and facts being relied upon by the Intervenor in support of his contentions, and the nature of the evidence which Ford proposes to use at the hearing. The Board feels that the references by Intervenor, in response to specific interrogatories, to the pages of its petition to intervene in which is contained much argumentative and conclusory material, is not sufficient in terms of the purposes of the discovery process.[16] Ford, as a party in the proceeding, has a responsibility to specify the facts, i.e., the data, information and documents, if any, upon which he intends to rely and upon which he has relied in support of his intervention, so that the parties may be advised in advance with regard to the nature of Intervenor's case. Further, if the Intervenor is relying on certain official documents of the Commission or other Government

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[15a] See also the discussion regarding experts not yet retained in *Moore, supra,* at pages 26-50 to 26-52, and Federal Rule 26(b)(4).

[16] The Board notes that, under date of May 23, 1975, Applicant has served upon Ford Set No. 2 of Applicant's Interrogatories in which it apparently attempts, by further discovery, to elicit from Intervenor more specific responses as to the basis for Ford's contentions.

agencies, he shall specify in particular which documents are being so relied upon. If the Intervenor cannot answer a particular inquiry on the grounds that he is still seeking information from the Applicant or the Staff by way of discovery requests, he shall specify what discovery requests are referred to and in what manner the responses to the discovery request have not yet been furnished or are insufficient at this point. To the extent the Intervenor is not in possession of the specific facts and information sought, he shall so state; generalized responses to the effect that "the information requested depends on facts within the intimate knowledge of the Applicants. . ." do not constitute a proper response by a party to a discovery request. The specific rulings contained in the *Attachment* hereto will illustrate and direct the Intervenor as to the manner in which he shall respond.

Similarly, the specific rulings will also indicate those aspects of the Applicant's interrogatories which the Board believes, as indicated in the governing case law, are too broad and pervasive, or are beyond the bounds of the contentions admitted as issues, and will designate the limitations which would represent a reasonable response. In this connection, the Board is constrained to observe that the traditional "Forms" for interrogatories found in recognized texts and handbooks used in civil litigation are not necessarily useful in administrative hearings such as the Commission's licensing proceedings. One should recognize that certain of the stylized process of civil court litigation takes on rather a strange cast if attempts are made to transfer it *in haec verba* to a hearing such as is here being conducted, with Intervenor parties appearing *pro se* and informal procedures being employed where it will expedite the process or enhance fairness. Thus, to require of the Intervenors, as does the Applicant's interrogatories, responses with the scope attempted in the section on "Definitions", seems to the Board not only somewhat unrealistic in the given circumstances, but less than practical. The Board also notes that, perhaps sardonically, the Joint Interrogatories of Commonwealth and Ford to Applicant have now copied Applicant's "Definitions" into their own document. Accordingly, the parties will be directed in the *Attachment* as to those responses which will be considered as adequate.

With regard to the joint interrogatories filed by the Commonwealth of Massachusetts and the Intervenor Ford on the Applicant, it appears, from the oral argument that certain portions of Sets 2 and 4, which have been objected to by the Applicant, need resolution by the Board.[17] (Sets 1 and 3 have apparently been resolved through consultation amongst the parties.) As to the still pending objections, the Board is of the opinion that the Applicant's objections filed against specifically named interrogatories in Sets 2 and 4 are well taken. The

[17] In this regard, the Board has also given consideration to the Memoranda on Objections to Sets 2 and 4 filed by the Applicant and the Response filed by Commonwealth and Ford, dated May 12, 1975.

joint interrogatories appear to be too broad and encompassing and should be more specifically related to the particular issues in the instant proceeding. Intervenors make no showing in their Response to Applicant's Memorandum of Objection, why such burdensome requests for all the projects engaged in by Bechtel and Combustion Engineering since their inception would be within reasonable limits for necessary proof in the subject proceeding, nor that, even if such voluminous information could be made available within the time span allowed for discovery in this proceeding, Intervenors could, in fact, make use thereof as a pretrial matter.

The Board is aware and agrees with Intervenors that the past record of licensees and their agents is germane in determining the qualifications of the Applicant to be awarded a construction permit for a new nuclear power plant. However, as the cases indicate, there must be reasonable limitations in terms of their direct bearing on the issues in this proceeding. The seeking of such a massive volume of information as is here requested, a good deal of which must, by its nature, be repetitive and duplicative, and only remotely relevant to the specific issues in the case, would constitute an undue and unnecessary burden. As the Applicant points out in its objections, to comply literally with Intervenors' request even as to individual interrogatories would involve searching through millions of pages of record data contained in voluminous files of its contractors covering many years of production. This is an inordinate and oppressive burden in terms of the reasonable needs for proof on the contentions admitted in this proceeding; and, as indicated by the Board's comments above, does not appear to come within those reasonable and sensible boundaries of discovery supported by the authorities. Accordingly, such interrogatories will not be allowed on the terms posed. Further, the requests for the records of Applicant's operating reports for Pilgrim 1 are equally available to the Intervenors from AEC files and, as indicated by the case law,[18] one party cannot compel another party to undertake the burden of prepatation of the former's own case. At the most, Applicant need only make available its files on Pilgrim 1 Operating Reports for Intervenor's inspection and copying.

The cases likewise hold that interrogatories seeking legal conclusions are improper.[19] Thus, asking the Applicant which of Bechtel's and CE's acts constituted "deficiencies", as in Interrogatory No. 1 of Set 4, calls for legal conclusions as to whether those companies had violated the Commission's Regulations and Guides. Similarly, questions regarding "ultimate facts" such as "whether a party was in default" have been disallowed as calling for expression of opinion or requesting the party to provide the acts and omissions of the adverse party which it is claimed contributed to, say, an accident.[20] The

[18] See *Moore, supra,* p 26-165.

[19] See *Moore, supra,* p 26-161.

[20] See *Moore, supra,* p 26-162, 163.

Attachment hereto will specify the manner in which the Applicant shall respond to appropriate interrogatories in Joint Sets 2 and 4.

With regard to the Staff's Interrogatories to the parties, the discussion at the Prehearing Conference revealed that most of these matters had either been resolved or that responses were not yet due. In light of certain circumstances that developed, the Board extended the time for the parties to respond to the Staff's Interrogatories. The Board will not attempt, in this document, to rule on such matters, it being hoped that parties can, through consultation, resolve such disputes as may arise.

In the circumstances of the extensive consideration thus far given to the discovery requests both by the parties and the Board, in terms of the pleadings and the oral argument at the prehearing conference, the parties are directed to respond to the respective discovery requests in the manner directed in the *Attachment* hereto within 15 days from the date of service of this Memorandum and Order.

Dr. A. Dixon Callihan and Dr. Richard F. Cole, Members of the Board, join in this Memorandum and Order.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Max D. Paglin, Esq., Chairman

Dated at Bethesda, Maryland
this 6th day of June 1975.

Attachment: Specific Rulings

ATTACHMENT

I. INTRODUCTION

The principles governing the manner in which responses to interrogatories shall be made are those set forth in the Board's Memorandum, *supra*, at page 586 *et seq.* Intervenor's answers to Applicant's interrogatories may be limited, in accordance with the views expressed in the Board's Memorandum (at page 587) regarding the scope of Applicant's section on "Definitions", to information, data and documents which have played or will play a substantial role in the preparation of the Intervenor's case. The same rule will apply to Applicant's responses when the Intervenors have used similar "Definitions". In accordance with 10 CFR 2.742, in those instances where the parties do not presently have the information requested in specific interrogatories, or have not

yet retained experts so that they cannot respond properly, they shall so state and shall supply the information at such time as it becomes available.

II. RULINGS ON SPECIFIC OBJECTIONS TO INTERROGATORIES AND DOCUMENT REQUESTS

A. Massachusetts Wildlife Federation (MWF)

1. Objections to Applicant's Initial Interrogatories and Document Request, (Set No. 1), dated April 1, 1975.

a. Intervenor's Objections to Interrogatories 1 (b) 2 through 1 (b) 5 and 3 (c) 2 are sustained on the grounds that said interrogatories are considered to be beyond the bounds of MWF's contentions.

b. Intervenor's Objections to Interrogatory 6 are sustained for the reasons set forth in paragraphs 3 and 4 of its pleading of April 1, concerning the use of experts, and on the bases of the authorities cited in *Moore, supra,* at pages 26-50 to 26-52 (commenting on Fed. Rule 26(b)4, which may be used as further guidance herein).

c. Intervenor is directed to respond to all the remaining interrogatories to the extent it has the requested information, data and documents in its possession.

2. Objections to NRC Staff's Interrogatories (Sets 1 and 2) dated April 1, 1975 and May 15, 1975.

a. MWF's Objection to Interrogatory I (Set 1) is sustained for the reasons set forth in II A 1 (b) above (re use of experts).

b. MWF's Objections to Interrogatories II-A (2), (3), II-C (2), (b) and to the latter portions of II-C (3), (4) are sustained as being beyond the bounds of MWF's contentions, and said interrogatories need not be answered.

c. MWF is directed to respond to all the remaining interrogatories to the extent it has the requested information, data and documents in its possession. [1]

B. Applicant

1. Objections to Joint Interrogatories (Commonwealth of Massachusetts and Daniel F. Ford) Set No. 2, dated April 18, 1975.

a. With respect to Joint Interrogatories 1, 2, 3, 10 and 11, Applicant's objections are sustained, in part, for the reasons set forth in its pleading of

[1] The Board notes the filing under date of May 30 of "NRC Staff's Motion To Compel Answers By Intervenor Massachusetts Wildlife Federation to NRC Staff's Interrogatories" and it is assumed that, by this Memorandum and Order, the Staff's motion is, in the main, rendered moot since said order is equivalent to a directive following a motion to compel.

April 18. However, Applicant is directed to provide the requested information with respect to its top level supervisory personnel and to the top level supervisory personnel of its principal contractors.

b. Applicant's proposed answers to Interrogatories 4, 9, 12, 19 and 20, contained in its "Answers" dated May 9, 1975 are considered to be reasonable in the circumstances of this case, and will be held to be adequate responses to the aforementioned interrogatories.

c. Applicant's objections to Interrogatories 6 and 7 are sustained for the reasons indicated in the Board's Memorandum as being unnecessarily broad and burdensome, and said interrogatories need not be answered.

2. Applicant's Objections to Joint Interrogatories (Massachusetts/Ford) Set No. 4 dated May 2 and 5, 1975.

a. Applicant's proposed answer to Interrogatory 1, in the manner described in its objections of May 2 and as contained in its "Answers" dated May 12, whereby it will produce the described documents in the Pilgrim 1 plant for inspection is considered to be reasonable in the circumstances of this case, and will be held to be an adequate response to said Interrogatory.

b. Applicant's objections to Interrogatory 4, as set forth in its pleading of May 2, 1975 are sustained, in part, for the reasons indicated in the Board's Memorandum as being unnecessarily broad and burdensome. However, Applicant shall respond to those portions of the Interrogatory which call for instances of incorrect quality control certification which have occurred at Pilgrim 1 and, to the extent that components, if any, are under construction off site at this early date and have been subjected to inspection procedures, as to the proposed Pilgrim 2. Applicant's responses shall be limited to components having nuclear safety significance or applicability.

c. Applicant's objections to Interrogatory 8 are sustained, in part, for the reasons set forth in its pleadings of May 2. However, Applicant shall identify those top level supervisory persons having Q A responsibilities with respect to Pilgrim 2, if not already provided in response to other Interrogatories.

d. Applicant's objections to Interrogatories 9a and 9b are sustained for the reasons set forth in its pleading of May 2, and for the reasons that preparing the statements of the entire history of nuclear plant experience of all the Pilgrim 2 Q A personnel, as requested, would be unduly burdensome and of questionable decisional significance or materiality.

e. Applicant's objections to Interrogatories 6, 10, 11, 12 and 13 are sustained for the reasons set forth in its pleading of May 5 and for the reasons set forth in the Board's Memorandum as being unduly and unnecessarily burdensome and oppressive. These Interrogatories, dated April 16, 1975, requested Applicant to review in excess of 10 million record pages to document instances of variance of several products of Combustion Engineering (CE) with the quality assurance standards of CE. The Board believes that information of the kind requested is available elsewhere to the

Intervenors, and suggests as sources, the records of the NRC Office of Inspection and Enforcement (and its predecessor with the AEC),[2] the records of the inspection staff of the vendor, and the records of the Applicant and any consultant organization providing inspection services to it. The Board would expect those records to include, among other information, the background supporting the assignment of an "N" stamp to reactor pressure vessels as prescribed by the ASME Boiler and Pressure Vessel Code.

C. Daniel F. Ford

1. Objections to Applicant's Interrogatories, Set No. 1 dated April 3, 1975.

a. Intervenor's objections to Interrogatory 1 and B-8, insofar as they relate to the matter of experts not yet retained, are sustained on the basis of the authority cited in *Moore, supra,* at pages 26-50 to 26-52 (commenting on Fed. Rule 26(b)(4), which may be used as further guidance herein).

b. Intervenor's objections to that portion of Interrogatory 2 referring to communication is denied as being too general and vague, as more fully explained in the Board's Memorandum, *supra.* However, insofar as such communication is concerned with experts not yet retained, they will be regarded as coming within the ruling set forth in a above.

2. Applicant's Memorandum re Intervenor Daniel F. Ford's Objections and Answers to Set No. 1, dated April 25, 1975.

a. Intervenor Daniel F. Ford is directed to revise his responses to Interrogatories A-1, A-2, A-3, B-5, B-6, C-1, L-1, M-1, M-2, 2(a), 2(b), 2(c), 2(e) and 2(j), in accordance with the directives set forth in the Board's Memorandum, pages 586-587, *supra.*

[2] The Board observes that the NRC Staff has responded affirmatively on April 10, 1975 to a request from the Commonwealth for information similar to that discussed here.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-31

ATOMIC SAFETY AND LICENSING BOARD

Samuel W. Jensch, Chairman
R. B. Briggs, Member
Dr. Franklin C. Daiber, Member

IN THE MATTER OF

Docket No. 50-286

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

June 12, 1975

(Indian Point Nuclear Generating Unit No. 3)

Upon application for operating license, Licensing Board accepts stipulation of the parties as a reasonable resolution of the environmental issues in the proceeding, and refers stipulation to the Appeal Board for its approval.

Upon review on its own initiative of certain health and safety matters, Licensing Board concludes that no serious safety issues are present with regard to quality assurance, plant security or financial qualifications and that no evidentiary hearing is required on these matters. Licensing Board finds seismic contentions to be matters of major importance but permits their withdrawal from this proceeding, since the same or similar issues are pending before the Commission in connection with a request for a show-cause order.

Director of Nuclear Reactor Regulation authorized to issue a license for full-term, full-power operation, subject to Appeal Board approval of stipulation and Commission determination respecting seismic contentions.

LICENSING BOARD: SCOPE OF REVIEW

A Licensing Board (or Appeal Board) is not prohibited in an operating license proceeding from exploring a relevant issue which the parties have not placed in controversy, but the power to do so should be exercised sparingly. CLI-74-28, RAI-74-7 7.

MEMORANDUM AND ORDER APPROVING STIPULATION FOR SETTLEMENT PROPOSED BY PARTIES AND DECISION RESPECTING CONCERNS RELATED TO THE AUTHORIZATION OF A FULL-TERM, FULL-POWER OPERATING LICENSE

This Memorandum and Order is concerned with the stipulation proposed by the parties for disposition of their contentions and also with the concerns indicated by the Atomic Safety and Licensing Board (the Board) that are related to the authorization of a full-term, full-power license for operation of Indian Point Nuclear Generating Unit No. 3. The stipulation proposed by the parties relates to the environmental contentions which included particularly the fish damage possibilities due to operation of the generating unit. The Board considered matters of health and safety on its own initiative.

Background

Indian Point Nuclear Generating Unit No. 3 (Unit No. 3 or the facility) is a pressurized water nuclear power plant, construction of which is essentially complete at the Indian Point site of Consolidated Edison Company of New York, Inc. (Con Edison or Applicant). The site is on the east bank of the Hudson River in the Village of Buchanan, Westchester County, New York, and is about 24 miles north of the boundary of New York City. Unit No. 3, designed to operate at a power level of 3025 megawatts thermal (MWt) and to produce a net output of 965 megawatts of electricity (MWe net), is the third nuclear generating unit constructed at the site. Unit No. 1, which operates at 615 MWt from a pressurized water reactor and 275 MWt from a fossil-fueled superheater to produce 265 MWe net, received its operating license in March 1962.[1] Unit No. 2, 2758 MWt and 873 MWe net, is of essentially the same design as Unit No. 3 and received a full-power operating license in September 1973.

The application to construct Unit No. 3 was filed by the Applicant on April 26, 1967 pursuant to the provisions of Section 104b of the Atomic Energy Act of 1954, as amended. Public hearings on the application were held at Montrose, New York before an Atomic Safety and Licensing Board which authorized, by an Initial Decision of August 13, 1969, issuance of a permit to construct Unit No. 3. The construction permit, CPPR-62, was issued on August 13, 1969.

On December 4, 1970, the Applicant applied to the U. S. Atomic Energy Commission (the Commission) for licenses to operate the facility.[2] Notice that

[1] Unit No. 1 is now shut down and the future of operation is uncertain.

[2] Application was amended in April 1973 to request licenses provided by the amended Section 104(b) of the Atomic Energy Act.

the Commission would consider issuance of a license which would authorize the Applicant to possess, use, and operate Unit No. 3 was published in the *Federal Register* on October 25, 1972.[3] As a result of this notice, several petitions for leave to intervene in opposition to the proposed operation of the plant were filed with the Commission. An Atomic Safety and Licensing Board, established to rule on the petitions, decided that the petitions of the State of New York (by the Atomic Energy Council of the State of New York), the Hudson River Fishermen's Association, and Save Our Stripers satisfied the Commission's intervention requirements. That Board ordered a public hearing to be held and admitted those petitioners as parties thereto. Although opportunity was provided for the other petitioners to remedy the deficiencies in their petitions, none qualified to become parties to the proceeding. The Attorney General of the State of New York filed petitions to intervene in the proceeding on April 24 and May 18, 1973. The Atomic Safety and Licensing Board that had been established for the proceeding (the Board) concluded that good cause had been shown for the late filing and admitted the Attorney General as a party.

Prehearing conferences were held at the Springvale Inn at Croton-on-Hudson, New York, on May 21 and November 27, 1973, November 26, 1974, and February 6, 1975. A public hearing for the purpose of providing additional information by way of statements reflecting public interest considerations in support of the stipulation and in reference to quality assurance, financial qualifications, and plant security inquiries by the Board was held at the Hendrick Hudson High School in Montrose, New York, on April 1 and 2, 1975.

As a procedural matter, a proposal for consolidation of the hearings in the Indian Point Unit No. 2 and 3 proceedings was made during the course of the Unit No. 2 sessions. When the Commission appointed the same Licensing Board for the Unit No. 3 proceeding and consideration was given in the No. 2 hearings to procedures for incorporating relevant portions from the No. 2 hearings into the Unit No. 3 record, the proposal for consolidation was for all practical purposes not further urged. A motion for consolidation had been filed on January 2, 1973 and was submitted to the Commission by the Hudson River Fishermen's Association (HRFA) and Save Our Stripers (SOS). The motion sought to consolidate the application for an operating license for Indian Point Unit No. 2 (Docket No. 50-247) and the application for an operating license for Unit No. 3 (Docket No. 50-286). This motion was made pursuant to 10 CFR 2.730 and 2.716 of the Commission's rules and regulations. HRFA was a party to the proceeding for Unit No. 2 which was in progress. The motion pointed out that because Unit No. 2 and Unit No. 3 are similar plants on the same site, the environmental issues of concern to them would be the same. The intervenors contended that consolidating the proceedings would save time and expense for all parties and would further the ends of justice.

[3] 37 *FR* 22,816.

The Applicant and the Staff opposed the motion to consolidate primarily on the basis that consolidation could be expected to delay the Unit No. 2 proceeding and that the benefits sought could be achieved by other means. The possibility of incorporating portions of the record from the Unit No. 2 proceeding accomplished the objectives sought from consolidation, and the Unit No. 3 proceeding was carried forward as a separate proceeding.[4]

Environmental Issues

All the issues between the parties to the proceeding were concerned with the effect on the environment of operation of Unit No. 3. The primary concern of the Staff and the intervenors, and their major difference with the Applicant, was the extent to which operation with a once-through cooling system would reduce the productivity of the Hudson River as a spawning and nursery area for anadromous fishes. The primary issues then became:

(a) Whether a closed-cycle cooling system should be required for Unit No. 3.

(b) If such a system were required, the date at which operation with the once-through system should be terminated.

None of the parties opposed full-power, full-term operation of the plant if adequate means were provided to protect the aquatic biota.

These same issues had been tried in the hearings for an operating license for Unit No. 2. From the beginning of the proceeding for Unit No. 3, the Board encouraged the parties to resolve issues by stipulation so that the evidentiary hearings could be concerned primarily with sharply drawn differences. After many months of discussions, the parties arrived at a stipulation which, although it did not resolve their differences, provided a basis that was agreeable to all parties for conditioning a full-term, full-power operating license for the plant. The stipulation, presented in full in Appendix A, includes a withdrawal of the requests for a hearing in this proceeding.

As noted above, Unit No. 3 is similar in design to Unit No. 2 and is constructed at the same site. After extensive hearings in which the same environmental issues were tried, the Initial Decision of the Board, issued September 1973, in the proceedings for Unit No. 2,[5] authorized operation of that plant with a once-through cooling system until May 1, 1978, after which time a closed-cycle system would be required. This decision was appealed. The

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[4] By Notice of Reconstitution of the Board, January 30, 1974, Dr. John C. Geyer was replaced by Dr. Franklin C. Daiber.

[5] RAI-73-9, page 751.

Atomic Safety and Licensing Appeal Board (Appeal Board), in its action on the appeal,[6] extended the time for operation with a once-through cooling system until May 1, 1979 and, accepting the substance of the decision of the Licensing Board, defined more precisely circumstances that could cause this date to be extended and interim measures that should be taken to ensure protection of the aquatic biota.

The stipulation in this proceeding is based on the decisions by both the Licensing Board and the Appeal Board. The parties agree to issuance of a full-power, full-term operating license, or other license, for Unit No. 3, without further hearings in the proceeding, provided that certain conditions are included in the license. The conditions provide:

(a) Once-through cooling of the plant will be terminated September 15, 1980. Thereafter, the plant shall be operated with an approved closed-cycle cooling system.

(b) Circumstances are defined that would lead to acceleration or limited extension of the September 15, 1980 date.[7]

(c) Measures are included to protect the aquatic biota from significant adverse impact in the interim.

(d) Procedures are defined that are to be followed on applications to extend the interim operation or for other relief from the conditions of the license. These procedures provide opportunity for public hearings on a Staff decision to grant or deny the requested relief.

In its consideration and review[8] of the stipulation, the Board has taken into account the record made in the Unit No. 2 proceeding, the Applicant's Environmental Report for Unit No. 3, and the Staff's Final Environmental Statement. In addition, some recent information considered consisted of data and reports from the Applicant's research programs and from other Hudson River aquatic ecology studies, and Applicant's report on the Economic and

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[6] RAI-74-4, pages 323, 473, 475; RAI-74-5, pages 825, 826; RAI-74-6, page 971; RAI-74-9, page 420; RAI-74-11, page 850. Commission action in the Indian Point No. 2 proceeding is shown in RAI-74-6, page 947.

[7] As of June 9, 1975, the Applicant had not been authorized by the Director of Nuclear Reactor Regulation to load the fuel into Unit No. 3. The plant will, therefore, not operate for 45 or more days at 40% or more of rated power between May 15 and July 31, 1975. By the terms of paragraph 2(e) of the stipulation, the September 15, 1980 date will be extended one calendar year.

[8] An excellent guide for reviews, generally, was enunciated by Judge Leventhal of the United States Court of Appeals for the District of Columbia in the *Greater Boston Television* case, 444 Fed (2d) 841, page 852 (1970). He stated:

> The process (of review) thus combines judicial supervision with a *salutary principle of judicial restraint,* an awareness that agencies and courts constitute a *"partnership"* in furtherance of the public interest, and are "collaborative instrumentalities of justice". The court is in a real sense *part of the total administrative process, and not a hostile stranger* to the office in the first instance. (Parentheses and emphasis added).

Environmental Impacts of Alternative Closed-Cycle Cooling Systems for Indian Point Unit No. 2.

All parties agree that there will be damage to the aquatic biota from the plant operations with once-through cooling system, but the magnitude thereof is in dispute. The very limited data made available by the Applicant did not materially alter its position presented in the Indian Point Unit No. 2 proceedings nor allay the concerns of the Staff and the intervenors. An analysis of the Applicant's and the Staff's data of the environmental effects of closed-cycle cooling, however, indicate that the adverse impact of natural draft cooling towers will be minimal. The increase in noise level and in icing and fogging will be insignificant. Damage to vegetation by salt drift[9] is likely to occur only during extended periods without rainfall, and then only to the most sensitive species in an area of a few square kilometers. A large tower and the plume will have a visual impact, the seriousness of which is highly subjective. The Applicant's conclusion that the costs of closed-cycle cooling greatly exceed any benefits that might be realized continues to differ from the conclusions of the other parties.

In the Final Environmental Statement, the Staff has taken the "fresh look" at the environmental impact of once-through cooling called for in ALAB-188. The model used for calculating the effect on the striped bass population has been greatly expanded and improved. The "f" factors and compensatory factors which enter into the calculation have been carefully reexamined, as has the relationship between the Hudson River fishery and the various regions of the Atlantic fishery. As part of its analysis, the Staff has introduced the number of years that the fish population is depressed by 50 percent by operation of once-through cooling at the plant as an index of the risk of irreversible effects on the striped bass population. Whether this criterion, or some other, is the more appropriate index remains to be established, and will undoubtedly be considered at any future hearing provided by the stipulation or a Commission order. The Staff has also reconsidered the other environmental effects of once-through and closed-cycle cooling systems and has prepared a cost-benefit analysis in which the benefits have been expressed in terms of dollar amounts. As a result of the analyses and after considering costs, benefits, and risks of once-through cooling and available alternatives, the Staff has recommended that a closed-cycle cooling system be required for Unit No. 3.

After considering the stipulation, all the information submitted, and statements by the parties in support of the stipulation, the Board concludes that the stipulation is a reasonable resolution of the environmental issues in this proceeding. The Board expects that the technical specifications to be adopted for the Indian Point No. 3 facility will be substantially similar to those for

[9] The Applicant, by a submittal presented after the April 2 session, conceded that the salt spray deposition from a cooling tower operation would be approximately equal to the background deposition.

Indian Point No. 2. These specifications provide that if unexpected or more serious damage occurs during plant operation, and within the interim period for data gathering, ameliorative measures will be immediately adopted. The Board thus concludes, after a thorough review, that acceptance of the stipulation is in the public interest and that no additional hearings on environmental matters are required at the present time. The Board emphasizes here that the stipulation requires construction of a closed-cycle cooling system for Unit No. 3, unless the Applicant or some other party produces convincing evidence that the adverse impact of once-through cooling is not serious or that the most acceptable alternative will have a more seriously adverse impact. The Board notes further that individuals and communities, who were not parties to the proceeding and participated only by way of limited appearances, are vitally concerned about the impact of cooling towers on the area in the vicinity of the plant. Before a closed-cycle cooling system can be constructed for Unit No. 3, the Applicant must prepare an Environmental Report on operation of the system. In the case of Unit No. 2, the Staff has concluded that it must prepare a Final Environmental Statement in support of the action that it would take in permitting modification of the plant to incorporate a closed-cycle cooling system.[10] The Board believes that the same procedure would be appropriate for Unit No. 3. The procedure provides opportunity for individuals affected by the action to request a public hearing and to oppose the action at a time when more information should be available for use in judging the relative impacts of once-through and closed-cycle cooling systems.

In summary, the stipulation thus provides a mechanism that is urged by the parties by which additional data can be developed during a specified period of time, which may be adjusted according to identified criteria, and thus serves as a reasonable present adjustment of the sharply opposing contentions of the parties.

Health and Safety Considerations

Although one individual and one organization petitioned to intervene in this proceeding on the basis of health and safety issues, the petitions were judged to be deficient, the deficiencies were not remedied, and neither petitioner was admitted as a party. Because of public concern about the safety of the plants at Indian Point, as evidenced by letters to the Commission, the petitions to intervene, and the intervention on health and safety issues in the Indian Point Unit No. 2 proceeding, and because of the Commission's, the Appeal Board's, and this Board's concern about quality assurance in the construction and operation of nuclear plants, the Licensing Board, on its own initiative, undertook to be apprised of and to consider certain health and safety matters. The Applicant objected to the consideration of health and safety matters on the

[10] Letter from Regulatory Staff Chief Hearing Counsel to the Board, dated April 29, 1975.

basis that 10 CFR Section 2.760a (1973) limited a proceeding on an application for an operating license to matters actually put into controversy by the parties and determined to be issues by the Commission or the presiding officer. This matter was submitted by certification to the Appeal Board of a question concerning the limitations on inquiry by an Atomic Safety and Licensing Board in an operating license proceeding.[11] The question was discussed and further certified for Commission determination by the Appeal Board. In a Memorandum and Order,[12] the Commission stated that neither a Licensing Board nor an Appeal Board is prohibited from exploring an issue which concerns it merely because the parties have not placed the matter in controversy. However, the Boards are neither required nor expected to look for new issues. The Commission held:

> Normally, *there is a presumption that the parties themselves have properly shaped the issues,* particularly because the hearing follows comprehensive reviews by the regulatory staff and the Advisory Committee on Reactor Safeguards.[13] (Emphasis added)

The issues shaped by the parties are reflected by the contentions advanced by an applicant or Staff and in petitions to intervene, or are reflected by exceptions to initial decisions. Only those matters need be decided, and exceptions will specify the portions of the record for review. The power to raise new issues, *sua sponte,* likewise the Commission held:

> ... *should be exercised sparingly and utilized only in extraordinary* circumstances where a Board concludes that a serious safety or environmental issue remains.

In light of the Commission's order, the Board gave a general review, to ascertain if new issues should be raised, to four topics related to health and safety. These topics were quality assurance, plant security, the financial qualifications of the Applicant, and the adequacy of the seismic design for the plant. These items were considered because of their importance to safety and the latter three because there might have been changes in circumstances which could give rise to questions many months after the Notice of Opportunity for Hearing and the normal time to petition to intervene.

In the case of quality assurance, plant security, and financial qualifications, the Board examined information in the application, in Staff reports, and in the record and the previously identified decisions by the Licensing Board and the Appeal Board in the proceeding for Unit No. 2. The Board also requested additional information from the Applicant and the Staff. Part of this information was provided in documents and part was provided orally in response

[11] RAI-74-3, page 245.

[12] RAI-74-7, page 7.

[13] This ruling is applicable to both Appeal Boards and Licensing Boards. RAI-74-7 at page 9. The Commission stated: "As a general rule, Boards are neither required nor expected to look for new issues."

to questions by the Board at the public hearing. The information indicates that the quality assurance and plant security programs are integral with those of Unit No. 2, which were reviewed in depth by the Licensing Board and the Appeal Board in the Unit No. 2 proceeding, and have been continually modified and improved[14] in conforming to the Commission's rules and regulations. The most recent financial statements indicate that the Applicant satisfies the Commission's requirements for financial qualifications. The cash position of the Applicant has materially improved since the date when the company deferred payment of a dividend. Applicant has received substantial rate increases, and in addition, has sold a fossil fuel plant (Astoria 6) to the Power Authority of the State of New York (PASNY) for a total price of $228 million, of which the Comptroller of New York State has approved as an interim payment the sum of $189 million. Applicant at the present time is negotiating for the sale of the Indian Point No. 3 facility to PASNY. In addition, further applications for rate increases are pending and Applicant has resumed payment of a dividend, albeit at a lesser amount than prior to the deferral.

After examining all the information provided, the Board has concluded that no serious safety issues, within the definition of authority for inquiries by a Board as given by the Commission's ruling on the certified question, are present with regard to quality assurance, plant security, or financial qualifications and that no evidentiary hearing is required on these matters. Therefore, since there do not appear to be safety issues requiring an evidentiary hearing and findings of fact and conclusions of law,[15] the determinations made herein are to the extent

[14] The Board has reviewed all of the inspection reports which were placed in the record by the Staff. While the oral testimony has supplied information related to the concerns of the Board, it is to be noted that in many instances, substantial periods of time were needed within which to resolve deficiencies, or apparent violations, noted by the Staff, and more expansive explanations in the inspection reports would be helpful to readers to be informed of the corrective action taken, such as how was engineering accuracy determined when the areas containing engineering drawings contained both current and obsolete drawings, and such as achievement of correct welding performance through explicit procedures.

[15] Under the Administrative Procedure Act, the findings of fact and conclusions of law are determined by and need only relate to the issues in the proceeding. In *Community & Johnson Corp. v. U. S.*, 156 F. S. 440 (1957), the Court stated that the Commission there held:

> ... findings of fact made on those points which the Commission considered relevant to settling the controversy before it. That is all the statute requires.

Furthermore: collateral matters do not require findings, *Bell Lines v. U. S.*, 263 F. S. 40. The determinations and conclusions herein, however, may, if desired, be regarded as findings, since they comply with all court approved forms:

> ... it is no more requisite for agencies than for courts, ... slavishly to set forth in wooden, numbered, footnoted paragraphs every step in the finding process. *Gilbertville Trucking Co. v. U. S.*, 196 F. S. 359 (1961).

> ... the Commission is not compelled to annotate to each finding the evidence supporting it ... (the Court) has not undertaken to make a fetish ... of pinning down such agencies, with reference to fact determinations .... *U. S. v. Pierce Auto Freight Lines, Inc.*, 327 U. S. 515. (Parentheses added).

that the concerns of the Licensing Board have been resolved and do not give rise to issues[16] for further consideration.

The question of the adequacy of the seismic design was raised initially in a report by the Geological Survey, New York State Museum and Science Service, in April 1974. In May 1974 the Citizens Committee for the Protection of the Environment requested the Director of Regulation to order Con Edison to show cause why the operating authority for Indian Point Nuclear Generating Plant Units 1 and 2 and the construction permit for Unit 3 should not be revoked. At question were the intensity of the maximum historical earthquake at the site, the peak ground acceleration associated with that intensity, and whether the Ramapo Fault is capable within the meaning of Appendix A, 10 CFR Part 100. Based on an investigation in which the Regulatory Staff concluded that an adequate analysis had been performed for Units 1, 2, and 3, the Acting Director of Licensing denied the petition in November 1974. The decision of the Acting Director was appealed to the Commission, by filing a request for review of that decision, by the Citizens Committee in January 1975.

The issue of the seismic design was raised by the Atomic Energy Council of the State of New York, a party in the Indian Point No. 3 proceeding, in questions to the Staff at the public hearing of April 1 and 2, 1975. The State contended that the Staff had misapplied Appendix A, 10 CFR Part 100, in arriving at the earthquake intensity to be used for deriving the Safe Shutdown Earthquake at the Indian Point site. After further consideration, the State withdrew this as an issue from this proceeding and requested the Commission to order a hearing for the following specific issues in a consolidated proceeding pertaining to Indian Point Nos. 1, 2, and 3 facilities.

1. Whether Staff has identified the Safe Shutdown Earthquake through proper evaluation of seismic and geologic information developed pursuant to the requirements of paragraph IV(a)(6) and V(a)(1)(ii) of Appendix A to Part 100 of the Commission's Regulations; and if Staff analysis on the above is found to be inconsistent with the provisions of Part 100, then

2. the regulatory action necessary to bring the Indian Point units into compliance with the terms of the Atomic Energy Act of 1954, as amended.

In filing its request to withdraw these issues from further proceedings before this Board, the State indicated that it will not oppose the issuance of a full-term operating license in this proceeding. The Applicant contends that the issues,

[16] In a post-hearing submittal, Applicant has stated: "... it is Applicant's position that the Board is not required to make any detailed findings and conclusions in this proceeding." (Letter of June 5, 1975 to Chairman, Licensing Board).

having been raised, must now be decided by this Board. The Staff supports withdrawal of the issues by the State.[17]

Seismic contentions are matters of major importance, and the contentions of the State could be made issues and decided by the Board on its own initiative. However, the same or similar contentions concerning the adequacy of the seismic analysis for Unit No. 3 and for Unit Nos. 1 and 2 at Indian Point have been placed before the Commission by the request made by the Citizens Committee for the Protection of the Environment and by the response of the State partly supporting the request made by the Citizens Committee. The Commission, by its Order of January 24, 1975, stated that it "... will act upon that request ...." Since the Citizens Committee request embraced all three units, Indian Point 1, 2, and 3, the pendency of the matter before the Commission serves in some respects as a reservation of this issue for Commission determination in the Indian Point No. 3 proceeding. In view of this posture of the matter, the Licensing Board, consistent with the procedure utilized by the Appeal Board in RAI-74-11, page 829, *supra*, permits the withdrawal of the New York State contentions in this regard.

Whether the contentions are to become issues in a proceeding involving Unit No. 3 will be decided by the Commission and the decision resulting from any such proceeding will apply to any operating license authorized for Unit No. 3 by this order. The Licensing Board therefore expresses no conclusion on this matter since to do so would appear to prejudge the matter for the Commission. The Board's authorization to the Director of Nuclear Reactor Regulation, therefore, is subject to the determination by the Commission respecting the adequacy and sufficiency of the data presented by Applicant and the Regulatory Staff on these seismic contentions. The Licensing Board has heretofore issued on April 8, 1975 an Order authorizing issuance by the Director of Nuclear Reactor Regulation of an operating license to permit fuel loading, subcritical and low power testing and limited operation not to exceed 91 percent of rated power.[18] In view of this

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[17] The Appeal Board has indicated that a withdrawal of a pleading does not automatically remove the issues from consideration. In the matter of *Duquesne Light Company* (Beaver Valley No. 2, RAI-74-11, page 829), the Appeal Board held that a Staff withdrawal of an exception did not prohibit the Appeal Board from giving a full review of the matter raised by the exception and after that consideration, the Appeal Board then permitted the withdrawal of the exception. In other words, the initial document filed could be utilized by the Board to the extent it desired, regardless of whether the parties left the matter at issue.

[18] Applicant by letter requested authorization for limited operation until June 30, 1975. The Board's order to the Director of Nuclear Reactor Regulation limited the term of the license "... for a period of time until modified by subsequent order of the Director or the Commission". The Appeal Board has ruled in ALAB-142 (RAI-73-8, page 587) that limited operation need not be restricted to one percent of rated power.

withdrawal of the seismic contentions by New York State, and the pendency of those matters before the Commission, the Licensing Board further authorizes the Director of Nuclear Reactor Regulation, in addition to the other conditions providing that the Indian Point Unit No. 3 be found to have its construction completed in accordance with the application as amended and the regulations of the Commission, to issue a full-power and full-term license subject to the determination to be made by the Commission respecting the seismic contentions pending before it.

Since the close of the session held on April 1 and 2, the Applicant, in accordance with the procedures considered and approved at the April session, has filed the required certificate issued by the New York State Department of Environmental Conservation, pursuant to Section 401 of the Federal Water Pollution Control Act Amendments of 1972. In accordance with the procedures adopted at the April session, the Section 401 certificate[19] is received into the record of this proceeding and constitutes evidence on behalf of the Applicant.

The parties to the stipulation have requested the Licensing Board, in addition to its approval, to submit the stipulation on environmental matters to the Appeal Board for its approval. This request is granted and the stipulation is so referred.

In view of the approval by this Licensing Board of the stipulation presented by the parties to this proceeding, and subject to the additional approval as requested by the parties by the Atomic Safety and Licensing Appeal Board, and subject to the determination made by the Commission respecting the seismic contentions pertaining in part to the Indian Point Unit No. 3 facility and pending before the Commission, and also in view of the resolution of concerns by the Licensing Board thus rendering the record without issues pending related to radiological health and safety (except as noted in reference to seismic contentions),

Wherefore, it is ORDERED, in accordance with the Atomic Energy Act, as amended, and the regulations of the Nuclear Regulatory Commission,[20] that the Director of Nuclear Reactor Regulation, after determining that the Indian Point Nuclear Generating Unit No. 3 has been completed in accordance with the application and regulations of the Commission, and subject to the approval of

[19] In a posthearing submittal, the Hudson River Fishermen's Association (HRFA) filed a comment with the Board concerning one paragraph of the Section 401 certificate that HRFA inferred might authorize some New York State agency to decide whether cooling towers would be constructed. HRFA insists that Applicant's commitment to build towers in the stipulation received in this proceeding must be respected, and unless evidence warranting a different result is presented to the Nuclear Regulatory Commission, the Applicant must not be allowed to violate its agreement. The Licensing Board expresses no opinion on the validity of the identified paragraph in the Section 401 certificate.

[20] The Nuclear Regulatory Commission is the nuclear power licensing and regulatory organization successor to the Atomic Energy Commission by virtue of legislation enacted by the Congress by Public Law 93-438.

the Appeal Board of the stipulation presented by the parties, and further subject to the determination by the Commission respecting the pending seismic contentions, is hereby authorized to make appropriate findings in accordance with the regulations of the Commission and for the protection of the environment, and to issue a license for the full-term and full-power operations sought by the application, as amended.

It is further ORDERED, in accordance with Sections 2.760, 2.762, 2.764, 2.785 and 2.786 of the Commission's Rules of Practice, that this Decision shall be effective subject to the conditions hereinbefore identified and shall constitute final action of the Commission forty-five (45) days after the date of issuance of this Decision, subject to any review pursuant to the above-cited Rules of Practice. Exceptions to this Decision, and a brief in support of such exceptions, may be filed by any party within twenty (20) days (twenty-five (25) days in the case of the Staff) after service of this Decision. Within ten (10) days of the filing and service of exceptions, any other party may file a brief in support of, or in opposition to such exceptions.[21]

ATOMIC SAFETY AND
LICENSING BOARD

R. B. Briggs

Franklin C. Daiber

Samuel W. Jensch, Chairman

Issued: June 12, 1975
Bethesda, Maryland

Attachment: Appendix A

[21] The time periods for filing exceptions, briefs, and responses are as specified in 10 CFR 2.762 as that rule existed when the Commission initiated this proceeding with its Notice issued October 1972. The rule Section 2.762 was amended on March 2, 1973, to provide different time periods for filing exceptions and briefs. Due process prohibits the application of the more restrictive time periods prescribed by the 1973 amendment to a pending proceeding.

APPENDIX A

STIPULATION

WHEREAS the Atomic Energy Commission has recognized that the public interest may be served through the fair and reasonable settlement of contested licensing proceedings;

WHEREAS the Hudson River Fishermen's Association ("HRFA"), Save Our Stripers ("SOS"), the Atomic Energy Council of the State of New York, the Attorney General of the State of New York, the Regulatory Staff of the Atomic Energy Commission ("the Regulatory Staff"), and the Consolidated Edison Company of New York, Inc. ("Applicant"), wish to settle all matters in controversy among them relating to the cooling system of Indian Point Unit No. 3 ("the Plant") and the protection of the aquatic biota of the Hudson River; and

WHEREAS the Atomic Safety and Licensing Appeal Board has ruled on related licensing conditions in *Consolidated Edison Company of New York, Inc.* (Indian Point Station, Unit No. 2), ALAB-188, RAI-74-4 323 (Apr. 4, 1974);

IT IS HEREBY STIPULATED by and among the attorneys for the parties to the above-captioned proceeding that:

1. The requests for a hearing in this proceeding are withdrawn.

2. HRFA, SOS, the Atomic Energy Council of the State of New York, the Attorney General of the State of New York, and Applicant agree that the Director of Regulation may issue to Applicant or its successor in interest an operating license for a term of 40 years for operation of the Plant at steady-state power levels not to exceed 3,025 megawatts thermal ("rated power"), provided that such license and any other operating license that may be issued earlier (for such purposes as fuel-loading, testing and limited power operation) shall contain the following condition:

Operation of Indian Point Unit No. 3 ("the Plant") with the once-through cooling system will be permitted during an interim period, the termination date for which will be September 15, 1980 ("the September 15 date"). Thereafter, except as hereinafter provided or as ordered by the Atomic Energy Commission, the Plant shall be operated with an approved closed-cycle cooling system. Such interim operation is subject to the following conditions, none of which shall be interpreted to limit or to affect in any way such other conditions as are imposed by the Atomic Energy Commission or any other governmental body (including, but not limited to, the State of New York) in accord with applicable law:

(a) Interim operation shall only be permitted to the extent that the requirements of this license (including such technical specifications as may be imposed by the Director of Regulation) to protect the aquatic biota of the Hudson River from any significant adverse impacts are satisfied; any necessary mitigating measure shall be promptly taken; such measures to include any

authorized remedy deemed to be appropriate by the Atomic Energy Commission, including an acceleration of the September 15 date to an earlier date which is deemed reasonable and warranted by the circumstances.

(b) The September 15 date is subject to acceleration or extension depending upon whether the Licensee, acting with due diligence, obtains all governmental approvals required to proceed with the construction of the closed-cycle cooling system by the end of the twelfth month following submission of the evaluation required by subparagraph (g) ("the twelve-month deadline"). In the event all such government approvals are obtained a month or more prior to the twelve-month deadline, then the September 15 date shall be accelerated accordingly. In the event the Licensee has acted with due diligence in seeking all such governmental approvals, but has not obtained such approvals by the twelve-month deadline, then the September 15 date shall be extended accordingly. If this license is issued before May 1, 1975, the twelve-month deadline shall be June 1, 1976.

(c) If the Licensee believes that the empirical data collected during this interim operation justify an extension of the interim operation period, or other relief, it may make an application to the Atomic Energy Commission. The filing of such application in and of itself shall not warrant an extension of the interim operation period.

(d) After the commencement of construction of a closed-cycle cooling system, a request for an extension of the interim operation period will be considered by the Atomic Energy Commission on the basis of a showing of good cause by the Licensee which also includes a showing that the aquatic biota of the Hudson River will continue to be protected from any significant adverse impacts as a result of operation of the Plant during the period for which an extension is sought. The filing of such application in and of itself shall not warrant an extension of the interim operation period.

(e) The September 15 date is subject to extension if the empirical data referred to in subparagraph (c) are insufficient solely because the Plant has not operated at at least 40% of rated power for 45 or more full days (8:00 a.m. to 7:59 a.m.) during the period from May 15 to July 31 in each calendar year, commencing January 1, 1975. The September 15 date will be extended one year for each calendar year in which such operation is not achieved. However, no such extension shall be granted after the Plant has achieved such operation in two calendar years, and no more than two such extensions shall be granted. This subparagraph shall not bar an application for an extension under subparagraph (c) because of lack of operation. As long as an extension of the September 15 date is possible pursuant to this subparagraph, whenever the Plant operates at less than 20% of rated power for more than 12 consecutive hours during the May 15 to July 31 period, no more than three circulating water pumps shall be used.

(f) In addition to the reporting requirements otherwise imposed by this license, the Licensee is directed to file with the Commission and serve on the

parties reports of its analysis of data collected during interim operation which bear on the environmental effects of once-through cooling on the aquatic biota of the Hudson River. Such reports shall be made publicly available. The first such report shall be made as soon as is feasible after the end of the 1975 striped bass spawning season but no later than July 31, 1976, and thereafter as significant new data become available.

(g) Evaluation of the economic and environmental impact of alternative closed-cycle cooling systems shall be made by the Licensee in order to determine a preferred system for installation. This evaluation shall be submitted to the Atomic Energy Commission by one month following the receipt of the full-term, full-power operating license, for review and approval prior to construction.

(h) The September 15 date assumes that the installation of a closed-cycle cooling system for the plant will require the relocation of the natural gas pipeline owned by Algonquin Gas Pipeline Company. If the final determination as to the location of the closed-cycle cooling system does not require the relocation of the pipeline, the date for the termination of the interim period of operation with the once-through cooling system will be May 1, 1980, and all dates in this condition shall be deemed changed to reflect those circumstances by substituting "May 1, 1980 ('the May 1 date')" for "September 15, 1980 ('the September 15 date')" and "the May 1 date" for "the September 15 date" throughout this condition and subparagraph (j)(1) of this condition shall be ineffective.

(i) No acceleration of the September 15 date shall be made pursuant to subparagraph (b) or (h) to the extent that such acceleration would result in the simultaneous excavation or outage for the construction of closed-cycle cooling systems for both Indian Point Unit Nos. 2 and 3.

(j) In construing and applying this condition, the following definitions shall govern:

(1) "governmental approvals" shall include, among others, approval by the Federal Power Commission of a certificate of public convenience and necessity, or amendment thereto, authorizing relocation of the natural gas pipeline owned by Algonquin Gas Pipeline Company and crossing the Plant site in order to permit excavation for a cooling tower adjacent to the Plant;

(2) "Licensee" shall include Applicant or any successor to its interest in the license to operate the Plant or any joint holder of the license to operate the Plant.

3. The Regulatory Staff agrees that the foregoing license condition is appropriate and that it will not require or recommend any conditions or provisions in its technical specifications or otherwise in the operating license with respect to operation of the Plant with once-through cooling inconsistent with said license condition.

4. (a) In the event that the Licensee applies for an extension of the interim operation period or other relief pursuant to subparagraph (c) or (d) of the

license condition set forth in paragraph 2 of this stipulation, the Licensee shall serve such application on each party as provided in paragraph 7(a) hereof. The Regulatory Staff shall promptly review said application and shall issue a report stating the Regulatory Staff's findings and conclusions concerning said application and a recommendation that the relief requested be approved, modified, or denied. A copy of such report shall be served on each party to this stipulation.

(b) Within 30 days following such service, any party to this stipulation may serve upon the other parties and file with the Commission a request for a hearing concerning the Regulatory Staff's recommendation. Each party, including the Regulatory Staff, hereby agrees to support any request for a hearing made by any party pursuant to this subparagraph (b). Such support for a request for hearing by any party to this stipulation shall not be construed as agreement with the substantive position of the party initiating the request for hearing. Any hearing and all subsequent proceedings held pursuant to this paragraph shall be governed by the Rules of Practice of the Atomic Energy Commission, or any successor agency, as such rules may then be in effect pursuant to the Atomic Energy Act of 1954 as now or hereafter amended, and to any other applicable laws. If no request for hearing is made, the Director of Regulation or his successor may amend the license condition as recommended by the Regulatory Staff.

5. In the event that the Regulatory Staff proposes any modification of the license condition set forth in paragraph 2 of this stipulation, pursuant to subparagraph (a) of said condition or otherwise, the Regulatory Staff shall issue a report setting forth the proposed change and the basis therefor. A copy of such report shall be served on each party to this stipulation. Following service, the procedure set forth in paragraph 4(b) of this stipulation shall govern.

6. Acceptance of this stipulation shall not be deemed a waiver by any party hereto of the right, in any future hearing or other proceeding, to advance or to oppose any contention not expressly barred by this stipulation, including but not limited to the contention that the analysis and statement required by section 102 of the National Environmental Policy Act of 1969 must include: (a) analysis of the effects on the fisheries of the Hudson River of all power plants situated on the Hudson River or whose design or construction on the Hudson River is imminent as of the time of the hearing, and (b) analysis of the need for power generated by the Plant and the availability of power from other sources.

7. The Licensee will serve on the other parties to this stipulation:

(a) any request for modification of the September 15 date, pursuant to paragraph 2(c) or 2(d) hereof;

(b) a notice of any modification of the twelve-month deadline, with the reasons therefor; and

(c) a notice that the September 15 date has been advanced or set back pursuant to paragraph 2 hereof, with the reasons therefor.

The request referred to in subparagraph (a) above shall be served at the same time it is submitted to the Atomic Energy Commission, and the notices referred to in subparagraphs (b) and (c) above shall be served as soon as possible after the circumstances giving rise to the modification have occurred. If the twelve-month deadline is extended more than eight months pursuant to subparagraph (b) of paragraph 2 of this stipulation, any further extension shall be subject to the approval of the Regulatory Staff. The Licensee shall submit any such request for a postponement and the Staff shall review such request and issue within 30 days of receipt of such request a written determination whether due diligence has been exercised by the Licensee. A copy of said determination shall be served on each party to this stipulation. Within 30 days following such service, any party to this stipulation may serve a request for a hearing on the Secretary of the Atomic Energy Commission and all other parties. Each party, including the Regulatory Staff, hereby agrees to support any request for a hearing made by any party pursuant to this subparagraph. Such support for a request for hearing by any party to this stipulation shall not be construed as agreement with the substantive position of the party initiating the request for hearing. Any hearing and all subsequent proceedings held pursuant to this subparagraph shall be governed by the Rules of Practice of the Atomic Energy Commission, or any successor agency, as such rules may then be in effect pursuant to the Atomic Energy Act of 1954 as now or hereafter amended, and to any other applicable laws. In any hearing involving subparagraph (b) of paragraph 2 of this stipulation, the Licensee shall have the burden of proof on the issue of due diligence, and in any hearing involving subparagraph (d) of said paragraph 2, the Licensee shall have the burden of proof on the issue of good cause. Nothing herein shall be construed to limit any party's rights to relief under the Rules of Practice or otherwise should it wish to maintain that a necessary governmental approval has been substantially granted or denied by passage of time or otherwise.

8. All parties agree to exercise due diligence in the performance of their various responsibilities under this stipulation. All parties also agree to cooperate in the expeditious processing of any applications for the various governmental approvals required under subparagraph (b) of paragraph 2 of this stipulation, and further agree not to object to the participation of any party to this stipulation in any proceeding relating to any such application.

9. Each party to this stipulation, other than the Regulatory Staff, expressly reserves the right to seek judicial review of any final order of the Atomic Energy Commission following a hearing under paragraph 4, 5, or 7 of this stipulation.

10. All parties, including the Regulatory Staff, shall serve on the other parties to this stipulation all correspondence, papers, and documents exchanged between them which relate to matters in controversy among the parties concerning the cooling system of the Plant or the protection of the aquatic biota of the Hudson River.

11. This stipulation shall be binding upon any successor-in-interest to the Applicant or any future co-applicant who shall come to hold or have any interest whatsoever in the operating license, and shall be binding upon any successor-in-interest to any of the parties hereto who has notice of the terms hereof as if such successor-in-interest had been an original party hereto, and shall remain in effect among the parties hereto and their successors-in-interest regardless of the addition or substitution of parties to the proceeding.

12. The license condition provisions of this stipulation shall not be final and binding on the parties hereto until this stipulation has been approved by the Atomic Safety and Licensing Board and the Atomic Safety and Licensing Appeal Board.

For the Applicant:

Harry H. Voigt

For the Regulatory Staff:

Joseph Gallo

For the Attorney General of the State of New York:

James P. Corcoran

For the New York State Atomic Energy Council:

J. Bruce MacDonald

For the Hudson River Fishermen's Association:

Angus Macbeth

For Save Our Stripers:

Nicholas A. Robinson

Dated: January 13, 1975

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-32

ATOMIC SAFETY AND LICENSING BOARD

Marshall E. Miller, Chairman
John M. Frysiak, Member
Sidney G. Kingsley, Member

In the Matter of

ALABAMA POWER COMPANY

(Alan R. Barton Nuclear Plant, Units 1, 2, 3, and 4)

Docket Nos. 50-524A
50-525A
50-526A
50-527A

June 13, 1975

Upon petitions for leave to intervene and requests for a hearing on the antitrust aspects of construction permit application (filed by intervenors in pending *Farley* proceeding who have sought consolidation of this proceeding with *Farley*), Licensing Board determines that, irrespective of whether the Commission ultimately consolidates the two cases, petitioners should be allowed to participate in this proceeding since (1) all parties to this proceeding are parties in *Farley*, (2) both proceedings involve essentially the same issues, and (3) the interests alleged here by petitioners supported their intervention in *Farley*. Board finds that although the petitions (which incorporate by reference much of that alleged in *Farley*) may not state within their four corners contentions with sufficient particularity, there is no resulting prejudice since the applicant and the Board have been put on notice of the ultimate facts and matters of law asserted.

Petitions granted.

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

10 CFR §2.714(a) requires that petitions for intervention be accompanied by supporting affidavits identifying the specific aspects of the subject matter of the proceeding as to which petitioner wishes to intervene, and setting forth with particularity the basis for petitioner's contentions with regard to each such aspect. A properly drafted petition will unambiguously give notice to the tribunal and adverse parties of the ultimate facts and matters of law asserted.

RULES OF PRACTICE: STANDING TO INTERVENE

A petition for intervention must set forth the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, and any other contentions.

RULES OF PRACTICE: STANDING TO INTERVENE

Customers of an applicant may have standing to intervene in administrative proceedings dealing with antitrust considerations.

MEMORANDUM AND ORDER

Alabama Power Company has filed an application for construction permits for four 1200-megawatt nuclear power units constituting the Alan R. Barton Nuclear Plant, to be located in Chilton and Elmore Counties, Alabama.

Two petitions have been filed for leave to intervene under Section 105 of the Atomic Energy Act, 42 USC 2135, to obtain an antitrust review, a hearing, and a determination that the activities under the proposed license would create or maintain a situation inconsistent with the antitrust laws. See 10 CFR 50.42.

The first petition for leave to intervene was filed by Alabama Electric Cooperative, Inc., a non-profit cooperative organized under the laws of Alabama. That petition rests on "the entire array of factual and evidentiary information" filed in a pending proceeding relating to the Farley Nuclear Plant (Dockets 50-348-A and 50-364-A), as submitted by the Cooperative, by the Municipal Electric Utility Association of Alabama, by the Antitrust Division of the Department of Justice, and by the staff of the Commission.

The second petition for leave to intervene was filed by the Municipal Electric Utility Association of Alabama, an association organized by twelve Alabama municipalities and utility boards operating electrical systems for the distribution at retail of electric power, all purchasing power from the applicant for resale. The Association alleges as a basis for its petition the alleged situation set forth in detail in the direct testimony and exhibits filed by the Department of Justice, the Cooperative, and the Association in the pending *Farley* proceedings.

Each of the two petitions for leave to intervene is opposed by the applicant on the grounds that it fails to set forth the interest of the petitioner in reasonably specific detail as required by our rules of practice (10 CFR 2.714); that it fails to assert a nexus between the activities under the proposed license and the asserted inconsistencies with the antitrust laws (*Matter of Louisiana Power & Light Company* (Waterford No. 3), Docket No. 50-382A, RAI-73-2,48, February 23, 1973); and that it fails to assert how the interest of the petitioners would be affected by the issuance of the proposed licenses.

The staff's response to each of the petitions for intervention is a statement

of its position that the petitioner meets the requirements of 10 CFR 2.714 and therefore should be admitted as a party to this proceeding.

The Attorney General has furnished to the Commission, pursuant to Section 105c. of the Atomic Energy Act (42 USC 2135(c)), his advice regarding the antitrust aspects of the Barton application. He has concluded that the activities under the licenses sought continue:

> . . . to foreclose to its smaller competitors the ability to produce power from large nuclear units to meet growing loads . . .

and would create or maintain a situation inconsistent with the antitrust laws; and he has recommended that a hearing be held on the application in accordance with Section 105c. of the Atomic Energy Act. On the prior application for the Farley plant, the Attorney General had concluded that activities under that proposed license would create or maintain a situation inconsistent with the antitrust laws, and had recommended a hearing. The Cooperative and the Association, which are the petitioners for leave to intervene in this proceeding, were permitted to intervene in the *Farley* proceeding.[1] After extensive prehearing procedures, the evidentiary hearings in the *Farley* proceeding began on December 4, 1974, and are still continuing. Extensive written direct and rebuttal testimony has been filed, and a large number of voluminous exhibits have been identified and many have been received in evidence. The transcript, which consists largely of cross-examination and re-direct examination, now consists of more than 11,000 pages and the hearing still continues.

The Cooperative has moved for an order consolidating this *Barton* proceeding with the pending *Farley* proceeding. That motion is now pending before the Commission, which has not delegated its authority to order consolidation of licensing proceedings. The Association has in effect joined in the motion for consolidation, which is supported by the staff but is opposed by the applicant.

Section 2.714 of the rules of procedure provides, among other things, that any person whose interest may be affected by a proceeding and who desires to participate as a party shall file a petition for leave to intervene accompanied by a supporting affidavit identifying the specific aspect or aspects of the subject matter of the proceeding as to which he wishes to intervene and on which he bases his request for a hearing. Such petition is required to set forth with particularity both the facts relating to his interest and the basis for his contentions with regard to each such aspect. It is further required that the petition set forth the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, and any other contentions of the petitioner. 10 CFR 2.714(a),(b).

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[1] See transcript of prehearing conference of September 27, 1972; prehearing orders of September 28, 1972; memorandum and order of February 9, 1973.

We agree with the applicant that neither of the two petitions for leave to intervene sets forth sufficiently, within its own four corners, the allegations prescribed by Section 2.714. In the usual case, we would feel compelled to deny each of the petitions on that ground. The petitioners have incorporated by reference enormous amounts of material from the allegations of their petitions in the *Farley* case, the pleadings in that case, and the voluminous exhibits and transcripts.[2] Considering that the office of a pleading is to give notice to the tribunal and adverse parties of the ultimate facts and matters of law asserted, we are of the view that such a wholesale incorporation by reference does not serve the purposes of a pleading and would ordinarily require that both petitions be denied (with or without leave to amend) for failure to comply with Section 2.714. However, this is not an ordinary case. All of the parties to this proceeding—the applicant, the Department of Justice, the two prospective intervenors and the staff of the Commission—are parties to the *Farley* proceeding. Analysis of the pleadings, the prehearing discovery procedures, and the oral and documentary evidence in the *Farley* case makes it clear that the issues in that case are essentially the same as those in this proceeding. Indeed, all of the parties appear to agree that this is the case. Within the range of discretion committed to us by Section 2.714, we are unable to perceive any controlling considerations which should lead to a result different from the order in the *Farley* case which granted the petitions for leave to intervene in that proceeding.

If the Commission should grant the motion for consolidation now pending before it, much of the evidence taken in the bifurcated *Farley* hearing would be applicable to the Barton project. The evidence in the *Farley* case has concerned itself substantially with the alleged pattern of conduct on the part of the applicant which, as a whole, is asserted to fall within the criteria of Section 105c. of the Atomic Energy Act. Even if the Commission should not allow consolidation of the two proceedings, it is our view that any additional discovery, other prehearing procedures, and evidence which would be required to be taken into account in this proceeding would relate largely to remedy, depending upon the outcome of the liability issue. We conclude that, however the Commission may decide the motion for consolidation, the petitions for intervention now before us should be granted.

In substance, the proposed intervenors allege that the interests of the Cooperative are those of a competitor of the applicant, which would be affected by the proposed operation of both the Farley and the Barton plants. There is emphasis on the exceptional size of the Barton plant with reference to the nuclear base load capacity in the Southern and Central Alabama market. The

[2] See Alabama Electric Cooperative's memorandum concerning items incorporated by reference—an enumeration elicited by our request during the oral argument of April 22, 1975.

municipalities have asserted an interest as wholesale power customers of the applicant, in access to nuclear power generation and transmission on reasonable terms and conditions. Both the courts and licensing boards have held that customers may have standing to intervene in administrative proceedings dealing with antitrust considerations.[3] It is here contended that various types of anti-competitive conduct by the applicant will cause damage to the municipalities unless conditions are attached to the issuance of a license.

The claims advanced by the proposed intervenors include:

(a) that the applicant has achieved a substantial monopoly position and that the issuance of the Barton license without conditions would seriously aggravate that monopoly;

(b) that, in any event, the issuance of licenses for the Barton plant would, unless properly conditioned, create a situation inconsistent with the antitrust laws;

(c) that the applicant's market domination is aggravated by its combination and coordination with affiliated operating companies in The Southern Company system;

(d) that large low-cost nuclear facilities in the relevant market constitute a unique economic resource, to which the intervenors are entitled to access on equal and non-discriminatory terms;

(e) that the applicant has abused its monopoly power by refusing to deal and to coordinate power supply arrangements; by harassing and deterring normal growth of the intervenors by sham litigation, propaganda and political efforts to foreclose financing of generation and transmission facilities; by maintaining pricing and rate policies to restrict and impede cooperatives and municipalities unreasonably in developing generation and transmission facilities; and by forcing upon the cooperatives and municipalities unreasonable restrictions in competition for customers.

A reasonable interpretation of the petitions for leave to intervene, as supplemented by the matters incorporated by reference, can fairly be understood as amounting to the allegation of the contentions which we have summarized. We find that there is sufficient compliance with the requirements of Section 2.714 as to identification of the specific aspects of the subject matter of the proceeding on which intervention is sought and the facts relating to the interests of the applicants for intervention and the basis of their contentions, as well as a sufficient allegation as to the way in which their interests may be affected by the results of the proceeding. In the circumstances of this case, we

[3] *Martin-Trigona* v. *Federal Reserve Board*, 509 F. 2d 363, 366 (CA DC, 1975); *Matter of Union Electric Company* (Callaway Plant, Units 1 and 2), NRCI-75/4R, 438. *Cf. Office of Communication of United Church of Christ v. F.C.C.*, 359 F. 2d 994, 1002 (CA DC, 1966); *United States v. SCRAP*, 412 U.S. 669, 37 L. Ed. 2d 254 (1973).

conclude that the allegations of the petitions may be deemed adequate as a basis for allowing intervention. Whether there is in fact, under the doctrine of the *Louisiana Power & Light* case, a sufficient nexus between the proposed activities under the license and the alleged conduct of the applicant creating or maintaining a situation inconsistent with the antitrust laws, is a matter for ultimate determination by the atomic safety and licensing board conducting the hearing.[4]

It is therefore ORDERED that the petitions of Alabama Electric Cooperative, Inc. and the Municipal Electric Association of Alabama for leave to intervene in this proceeding are granted.

THE ATOMIC SAFETY AND LICENSING BOARD
established to rule on
petitions for intervention.

John M. Frysiak, Member

Sidney G. Kingsley, Member

Marshall E. Miller, Chairman

Issued at Bethesda, Maryland
this 13th day of June, 1975.

[4] The board conducting the evidentiary hearing in the *Farley* proceeding deferred the ultimate decision of this issue until an appropriate stage of that hearing. See footnote 1, *supra.*

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-33

Samuel W. Jensch, Chairman
Dr. George C. Anderson, Member
Lester Kornblith, Member

In the Matter of

KANSAS GAS AND ELECTRIC COMPANY and
KANSAS CITY POWER AND LIGHT COMPANY

(Wolf Creek Generating Station, Unit No. 1)

DOCKET NO. STN 50-482

June 23, 1975

Upon stipulation presented by parties at special prehearing conference, Licensing Board accepts as issues in the evidentiary hearing all stipulated contentions as well as joint intervenors' contention regarding applicant's financial qualifications, but rejects the other five contested contentions.

RULES OF PRACTICE: CONTENTION REQUIREMENT FOR INTERVENTION

Since a licensing board need only consider alternatives which are reasonably available (see: *National Resources Defense Council, Inc.* v. *Morton*, 458 F. 2d 827 (D. C. Cir. 1972)), in order for contentions relating to alternative energy sources to be admissible as issues in a proceeding, they must identify (1) the source of energy that might be developed, (2) the present status of development, and (3) reliable data that the source is likely to be available.

LICENSING BOARD: SCOPE OF REVIEW

Contentions relating to transportation of spent fuel and radioactive wastes and to the applicant's treatment of the components of the uranium fuel cycle are inappropriate insofar as they challenge numerical values for these subjects which are specifically defined by Commission regulations. (See 10 CFR §51.20(e) and (g)).

NEPA: CONSIDERATION OF ALTERNATIVES

The Energy Reorganization Act directs the Commission to conduct a national survey to locate and identify possible nuclear energy center sites; and until such survey is complete, contentions claiming that an applicant must evaluate such centers as alternatives to the proposed facility are inappropriate.

RULES OF PRACTICE: CROSS-EXAMINATION BY PARTIES

All parties to a proceeding are entitled to cross-examine a witness on matters which have been placed into controversy by any of the parties, and are not limited to matters contained within their own admitted contentions.

LICENSING BOARD: SCOPE OF REVIEW

Inquiries concerning pressure vessel integrity are warranted only where special circumstances are asserted which involve the particular facility in issue.

ORDER DETERMINING CONTENTIONS

At the special prehearing conference held in Lawrence, Kansas on May 19, 1975, the parties[1] to the proceeding presented a stipulation respecting contentions to the Atomic Safety and Licensing Board. The stipulation contained agreed upon contentions as well as objections by Applicants and the Regulatory Staff to certain other contentions proposed by the intervenors. The stipulation also provides that all other than the enumerated contentions are withdrawn by the intervenors. This order considers the objections by Applicants and the Regulatory Staff to the contentions identified in the stipulation.

The Atomic Safety and Licensing Board, in a consideration of the stipulation to the extent of the agreement, accepts the stipulated contentions as issues in the proceeding.

Respecting those six contentions to which the Applicants have objected as well as those three to which the Staff has objected, the Atomic Safety and Licensing Board concludes as follows (using the identification numbers and the text of proposed contentions as reflected in the stipulation):

Contention I-8

Protection against transportation accidents involving transportation of spent fuel from the WCGS to unspecified reprocessing sites has not been considered or treated adequately by the Applicants. No details are given for

[1] The parties include: as Applicants, Kansas Gas and Electric Company and Kansas City Power and Light Company; as joint intervenors, the Mid-America Coalition for Energy Alternatives, Wolf Creek Nuclear Opposition, Inc., and State of Kansas; and as representatives of the Nuclear Regulatory Commission, the Regulatory Staff.

safe transfer of spent fuel from the site, or for tentative routes in emergency procedures. For example, there have been several derailments in the vicinity of Hermann, Missouri, through which train shipments of spent fuel are likely to move. These derailments have resulted from the poor condition of the road beds, but the Applicants have not indicated whether or not they will ensure the safe condition of such road beds if they are involved in transportation of spent fuel from the WCGS.

The Applicants and the Staff based their objections to this proposed contention upon the regulations (10 CFR 51.20(g)) adopted by the Nuclear Regulatory Commission,[2] which require an accounting of the environmental effects of transportation of fuel and waste. Data to this effect were directed to be shown in an Applicants' environmental report and the Staff's detailed environmental impact statements. These data were directed to be based upon the summary table identified as Table S-4 appended to the regulations, as shown in Volume 40 of the *Federal Register* at page 1005. This table sets forth numerical values for the environmental effects of transportation of spent fuel and radioactive waste to and from the described nuclear reactors under both normal and accident conditions. These regulations and the summary table measuring the environmental effects are binding upon the Board[3] and the parties. While other regulatory provisions (Section 2.758) permit parties to seek a variance from the application of such regulation as 10 CFR 51.20(a) *et seq.*, no such endeavor is reflected in the pleadings in this record. Upon this basis, the objections by Applicants and the Regulatory Staff are sustained to proposed contention I-8, until the procedure required by Section 2.758 of the Rules of Practice is followed.

Contention I-15

The Energy Reorganization Act directs the Nuclear Regulatory Commission to conduct a national survey to locate and identify possible nuclear energy center sites. The definition of Nuclear Energy Center is given in NUREG-75/018, the Scope of Work document for the Nuclear Energy Center Site Survey.

The Environmental Report fails to evaluate the alternative of providing the energy to be generated by the WCGS from a Nuclear Energy Center.

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[2] The Nuclear Regulatory Commission is the successor licensing and regulatory organization to the Atomic Energy Commission as provided by 83 Stat. 1233.

[3] The Statement of Considerations accompanying the formal adoption of 10 CFR 51.20 is regarded as equally effective as the scope of the regulations. The Commission ruled: "... compliance with the new rule will be required upon the effective date", which is Febuary 5, 1975.

Applicants object to this proposed contention upon several grounds that include lack of specificity (which nuclear energy center or centers should be evaluated), lack of designation whether a nuclear energy center is a reasonable alternative, and finally that the proposed contention is speculative whether any nuclear energy center will be designated. At the special prehearing conference, the joint intervenors appeared to suggest that Applicants should conduct their own study for a possible nuclear energy center. The statute relied upon by the intervenors, however, directed the Nuclear Regulatory Commission to undertake the study. Information available in the public records of the Commission indicate that the views of all members of the public are sought in connection with this consideration and possible designation of an energy center. The joint intervenors may desire to participate in that study and investigation undertaken by the Commission. This proceeding, however, is not the forum for development of a nuclear energy center that may be designated as required by the statute. Until the mandate of the statute has been fully performed, the proposed contention respecting a nuclear energy center is not a reasonable alternative, nor one imposing a responsibility upon Applicants to develop, for consideration in this proceeding, and objections by the Applicants are sustained.

Contention I-23

The Applicants must consider the alternative of postponing the commencement of construction of the WCGS to allow for development of alternative energy sources listed in Contention I-22, above, which, while not necessarily available for 1982, might become technically feasible during the life of the proposed facility.

The Applicants object to the grant of this proposed contention upon the ground that it is a superfluous addition to or summary of certain of the preceding contentions (I-22, for instance). Applicants also suggest that this statement proposed as a contention is in fact a legal argument that should be the subject of briefs. The Board, however, has difficulty with those objections, but believes that the proposed contention lacks specificity and does not conform to the rule of the *Morton* case (*Natural Resources Defense Council, Inc. v. Morton*, 458 Fed 2nd 827 (1972)), requiring the consideration of reasonable alternatives. The statement asserts that some technological developments "might" occur to render some other source of energy feasible. The Board believes that something more is needed to identify what source of energy might be developed, what the present status of development is, and reliable data that the source is likely to be available. The present statement of intervenors provides none of these elements, but would leave it to apparently a rambling over all items, such as are in I-22, for instance, with speculation whether any one possible source would develop to be equal to power capacity. The *Morton* case sets a limit on this range of survey; the alternatives to be considered are those which are reasonably available. This

limitation also serves to clarify what might otherwise be thought to include all possibilities; the *Morton* case requires a consideration of present day realities. In the opinion of the Board, the proposed I-23 contention is subject to the foregoing discussed infirmities and cannot be allowed as a contention in this proceeding.

Contention I-24

The Applicants have ignored in their Environmental Report the components of the uranium fuel cycle. Of particular concern is the unsupported assumption that a safe, economic, and environmentally acceptable method, structure, or other repository, exists for the disposition of high-level wastes, in spite of the present absence of such structure or even the finally approved design for such an operation. There is the additional unsupported assumption that a stable society of technologically intelligent beings will retain control of any fission waste disposal facilities for a minimum of 800 years and trans-uranium waste disposal facilities for more than 100,000 years. Unless the validity of these assumptions can be demonstrated, it must be concluded that at present any proposed disposal of nuclear waste from these plants is unsafe, uneconomic, and environmentally unacceptable.

The form of this contention is that the Applicants have ignored the components of the uranium fuel cycle in the Environmental Report. The important concern is the regulatory requirement for the presentation of data. The Applicants and the Staff object to this proposed contention upon the ground that it is a direct challenge to 10 CFR 51.20(e) and as such is inadmissible for consideration.

That regulation enumerates the subjects that must be considered in reference to the relationship of the uranium fuel cycle activities to the environmental costs. The concluding portion of the regulation states:

> No further discussion of such environmental effects shall be required.

Section 10 CFR 51.20(e) provides in major part as follows:

> . . . the contribution of the environmental effects of uranium mining and milling, the production of uranium hexafluoride, isotopic enrichment, fuel fabrication, reprocessing of irradiated fuel, transportation of radioactive materials and management of low level wastes and high level wastes related to uranium fuel cycle activities to the environmental costs of licensing the nuclear power reactor, shall be as set forth [in Table S-3].

Table S-3 is similar in scope and intent as Table S-4 considered herein in reference to proposed contention I-8. Table S-3 sets forth a scale of values that is the basis of 10 CFR 51.20(e). The Appeal Board held as follows:

> . . . the environmental values assigned in Table S-3 . . . reflect the Commission's considered evaluation and quantification of the adverse environmental effects of the uranium fuel cycle attributable to individual reactors. The figures were developed in public rulemaking proceedings convened by the Commission specifically to consider such matters. [Reference deleted] They form an integral part of [10 CFR 51.20(e)]. To go behind them and challenge the basis on which they rest is in effect a challenge to the regulation itself. It may well be that these values rest on unfirm footing. The Licensing Board, however, is not the proper forum for consideration of such matters. *Potomac Electric Power Company,* RAI-74-7 at page 89.

The Licensing Board concludes that it must include the values in the S-3 table in its cost-benefit analysis in the environmental statements. The objections by Applicants and the Staff are sustained and proposed contention I-24 is disallowed.

Contention II-1

> Applicants are not financially qualified to construct and operate the WCGS in light of the fact that Applicants have delayed its construction for one year.

The Applicants object to this proposed contention for a lack of adequate specificity. Applicants rely upon 10 CFR 2.714 which requires that an intended intervenor must set forth ". . . the specific . . . aspects of the subject matter of the proceeding as to which he wishes to intervene . . . and setting forth with particularity both the facts pertaining to his interest and the basis for his contentions . . . ." Applicants concede that ". . . the question of Applicants' financial qualifications to design and construct the proposed facility is to be decided by the Board . . . "; Applicants apparently believe that no party to the proceeding may inquire into a matter that the Board, for instance, may develop on the record. Such a view, of course, is contrary to the Appeal Board ruling in the *Northern States Power* case (Prairie Island), RAI-74-11, pp. 857, 868, and RAI-75-1, page 1175, which that applicant did not appeal to the Commission. That ruling authorizes any party to a proceeding to cross-examine in reference to any matter developed in the record even though a cross-examiner may not have any such contention in the record. Since the matter of financial qualifications will be an issue, the objections by Applicants are somewhat less than forceful.

More importantly, however, are the requirements of 10 CFR 50 Appendix C, which enumerates the financial data to be supplied by Applicants for a construction permit. Applicants point out that the proposed contention states that Applicants are not financially qualified to construct and operate the proposed nuclear facility. Applicants are correct that the Notice of Hearing by the Commission limits the scope of the hearing in this respect to financial

qualifications to design and construct the facility. That limitation renders the contention, insofar as related to operation, inoperative for the hearing. The Atomic Safety and Licensing Board concludes, however, that the specific enumeration of data to be supplied by an applicant pursuant to 10 CFR 50 Appendix C, together with the recognition that a Board must determine and thus inquire into the adequacy of financial qualifications for a construction permit, both operate to assist in the consideration of the form of the contention II-1 and whether it is of sufficient specificity for inclusion as an issue in this proceeding. Sections 2 and 3 of 10 CFR 50 Appendix C are detailed and positive requirements regarding financial qualifications. The Board concludes that the data supplied by Applicants are general, and somewhat indefinite in form respecting its ability to procure the needed capital sums, and the contention of the intervenor is therefore likewise somewhat general in character. Financial plans of the Applicants will necessarily vary according to capital market conditions, and what proportions of the funds needed will be derived from debt or equity securities can best be determined as a project progresses. The intervenors' judgment apparently is that with pending claims for further rate increases and generally presently adverse economic conditions, Applicants cannot procure the needed funds. The Board concludes that the matter should be examined by all parties to the proceeding and the objections to this proposed contention are overruled, and the contention is admitted as an issue.

Contention II-5

The probability of fracture defects and problems with the proposed reactor pressure vessel has not been adequately reduced by research and development to date to warrant the assumption that the WCGS will be capable of operating without an adverse impact on the public health, safety and welfare.

Applicants and the Staff object to this proposed contention and point out that the Commission has specifically ruled that

> . . . to warrant inquiry (into pressure vessel integrity) the evidence must be directed to the existence of special considerations involving a particular facility in issue. (Parentheses added) *Consolidated Edison Company (Indian Point Unit 2)*, CLI 72-29, 5 AEC 20, 21, n. 5.

No such showing of proposed evidence or affidavit material indicating any special considerations has been proffered by intervenors. The proposed contention appears more in the nature of a request for rulemaking procedure, since in advance of construction, intervenors apparently would be limited in presenting allegations of special considerations involving the Wolf Creek pressure vessel. In any event, the proposed contention does not comply with the Commission's direction, and the objections are sustained.

Wherefore, it is ORDERED, in accordance with the Atomic Energy Act, as amended, and the Rules of Practice of the Commission, that the evidentiary hearing in this proceeding shall include as issues those contentions which have been accepted by all parties, and in addition, shall include that contention accepted by the ruling made in this Order.

ATOMIC SAFETY AND
LICENSING BOARD

By Samuel W. Jensch, Chairman

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-34

ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Chairman
Frederick P. Cowan, Member
Ralph S. Decker, Member

In the Matter of

DUKE POWER COMPANY

(Catawba Nuclear Station,
Units 1 and 2)

Docket Nos. 50-413
50-414

June 30, 1975

Upon application for construction permits for Catawba Nuclear Station, Units 1 and 2, Licensing Board issues initial decision authorizing the Director of Nuclear Reactor Regulation to issue such permits (with stated environmental conditions), effective only after favorable action by the Commission on Applicant's petition for a waiver or exception, or its request for an exemption, from certain requirements of 10 CFR §50.46(a)(3), relating to applicability of the Final Acceptance Criteria.

ATOMIC ENERGY ACT: SCOPE OF INFORMATION REQUIRED FOR LICENSING

An applicant has a duty to keep the Commission fully and accurately informed of all material developments affecting the application during its pendency before the agency so that the record upon which a decision is to be based will represent accurate and complete information.

LICENSING BOARD: SCOPE OF REVIEW

A Licensing Board cannot rely solely on the presentations of the parties before it in making its findings, but must independently evaluate the evidence in light of the public interest criteria which govern its actions. See: *Scenic Hudson Preservation Conference* v. *FPC*, 354 F.2d 608 (2nd Cir. 1965); *cert. den.*, 384 U.S. 941.

CONSTRUCTION PERMITS: SITE CRITERIA

The "Staff Working Paper on Population Density Around Nuclear Power Plant Sites" does not constitute approved Commission policy, and need not be inquired into when a Licensing Board finds that the site chosen complies with 10 CFR Part 100. *Porter County Chapter of the Izaak Walton League of America, Inc., et al.* v. *AEC, et al.*, ____F.2d____(7th Cir. 1975) distinguished.

APPEARANCES*

Troy B. Connor, Jr., Esq., **Joseph B. Knotts, Jr.**, Esq., **J. Michael McGarry, III**, Esq., and **William L. Porter**, Esq., for the Applicant, Duke Power Company

George S. Daly, Jr., Esq., for the Intervenor, Carolina Environmental Study Group, Inc.

Bernard M. Bordenick, Esq., **Robert H. Culp**, Esq., and **Donald Davis**, Esq., for the Regulatory Staff of the Nuclear Regulatory Commission

INITIAL DECISION

I. BACKGROUND

1. The subject Initial Decision, the fourth in this proceeding involving the above-captioned application of Duke Power Company (hereinafter referred to as "Applicant" or "DPC") to construct the proposed Catawba Nuclear Station, Units 1 and 2, is being issued to complete the Board's responsibilities in this proceeding, subject to review. A detailed history and background of this proceeding is set forth in Partial Initial Decisions issued by this Board on April 9, 1974, May 14, 1974, and December 19, 1974, and in the Board's Memorandum and Order of November 14, 1974.[1] The April Partial Initial Decision dealt with environmental issues (hereinafter referred to as Environmental PID); the May Supplemental Partial Initial Decision dealt with site suitability matters (hereinafter referred to as Site Suitability SPID); and the December Supplemental Partial Initial Decision considered whether Applicant's proposed design would

*Appearances in the earlier hearings in this proceeding are listed in the prior decisions herein, in note 1, *infra*.

[1] LBP-74-22, RAI-74-4, 659; LBP-74-34, RAI-74-5, 861; LBP-74-90, RAI-74-12, 1117; and LBP-74-84, RAI-74-11, 890, respectively.

comply with the Interim Acceptance Criteria for Emergency Core Cooling Systems (hereinafter referred to as ECCS SPID). These decisions are, in the interests of brevity and to the extent they remain unchanged, incorporated herein and made a part of this Decision by reference.

2. As noted above, the Board, on November 14, 1974, issued a Memorandum and Order reopening the record herein on the issues of need for power from the Catawba facility and Applicant's financial qualifications to design and construct Catawba. As recited in that Memorandum and Order, developments which occurred after the close of evidentiary hearings in the Spring of 1974 led the Intervenor, Carolina Environmental Study Group, Inc. (hereinafter referred to as "Intervenor" or "CESG"), and the AEC Regulatory Staff (hereinafter referred to as "Staff") to request that the record be reopened on these two issues.

3. As a preliminary matter, the Board is constrained to comment on the nature of this proceeding which has covered such a long and sometimes tortuous route. The proceeding was beset from the outset with extensive unique and complex procedural problems, already referred to in some detail in the first Partial Initial Decision,[2] basically stemming from the determined opposition of the Applicant to intervention by CESG, with lengthy exchanges of pleadings by the parties and an appeal by the Applicant from the Board's determination to allow the intervention.[3] Thereafter, there was further litigation before the Board on the question, until then unresolved, of *res judicata* and collateral estoppel raised by the Applicant because of the prior adjudications in the earlier proceeding involving the same parties in the *McGuire* application,[3a] again necessitating the issuance of a lengthy opinion by the Board on the novel legal questions involved.[3b]

4. Despite the delays caused by these complex procedural problems, the Board conducted the proceeding under an extremely expedited schedule, to the point where, as commented on in the Environmental PID,[4] there were extreme demands on the physical endurance and cooperation of the parties. The hearings were quite contentious and frequently were diverted from their intended expedition by repeated procedural objections by Applicant's counsel, as well as by the fact that Intervenor was under the handicap of not being represented by counsel. The Partial Initial Decisions on Environmental Issues and Site

[2] See Environmental PID, *supra,* Sections I and II.

[3] The appeal was denied by the Appeal Board (ALAB-150, RAI-73-10, 811), as was Applicant's petition for clarification (ALAB-155, RAI-73-10, 829).

[3a] In re *Duke Power Company* (William B. McGuire Nuclear Station, Units 1 and 2) Docket Nos. 50-369, 370, LPB-73-9, RAI-73-2, 92, February 21, 1973; ALAB-128, RAI-73-6, 623, June 13, 1973; ALAB-143, RAI-73-9, 623 September 6, 1973.

[3b] Memorandum and Order, dated January 15, 1974 (RAI-74-1, 82).

[4] See Environmental PID, *supra,* paragraphs 19-20.

Suitability were issued by the Board promptly after the first two phases of the hearing so as to enable the Applicant to seek a Limited Work Authorization.

5. After the radiological safety and health hearings were concluded on April 30, 1974, and after the filing of Proposed Findings by the parties, there was called to the Board's attention by a pleading filed by the Intervenor on July 1, 1974, the fact that, for the reasons discussed in greater detail below, the Applicant had apparently determined to delay the construction and operation of the proposed Catawba Plants for a period of two years. As detailed in its letter of inquiry dated July 30, 1974, to the Applicant, the Board was concerned as to the continued validity of the record theretofore made by Applicant's witnesses at the earlier hearings on need for power and financial qualifications. After granting an extension of time to Applicant for response and receiving the comments of the parties, the Board conducted a full oral argument on November 1, 1974, on the question of the need for reopening the record. By Memorandum and Order of November 14, 1974,[5] the record was reopened on the aforementioned two issues, and the hearings and additional discovery were conducted again on an expedited schedule.

6. During the reopened hearings, one of the matters raised by both the Intervenor and the Board was the possible inconsistency between the sworn testimony of Applicant's witnesses at the earlier hearings and certain statements made by the President of Duke Power Company, Carl Horn, Jr., regarding the scheduled Catawba units which were quoted in a newspaper article on June 26.[6] After some discussion at the hearings, and at the insistence of the Board (Tr. 3275-78), Mr. Horn was produced as a witness on February 21, 1975, and responded to the questioning of the parties and the Board regarding the circumstances of the Applicant's decision to delay construction of the Catawba plants and the circumstances surrounding his statements to the press on the matter. He was also questioned regarding his statements to the press in February 1975, concerning the impact on Duke's finances of rate actions taken by the State regulatory commissions.

7. In the light of Mr. Horn's testimony,[7] it appeared that his statements quoted in the newspapers may have been made under some misunderstanding of the scope of the reporters' questions and of the intervening events regarding actions by the North Carolina Public Utilities Commission. For the purposes of this proceeding, the Board is inclined to accept Mr. Horn's explanation as a reasonable one in the circumstances. However, the record thus far made is not free of doubt as to whether, at the time Applicant's witnesses were giving

[5] See note 1, *supra.*

[6] These newspaper articles were attached to Intervenor's petition to reopen the record, dated July 1, 1974. They were also referred to in the Hearing Conference of November 1, 1974 (Tr. 2-7, et seq.).

[7] See Tr. 3580-3619.

testimony before the Board, the Applicant did not already know that the facts regarding need for power and financial qualifications had begun to change materially, as indicated by Applicant's later revisions of its plans for construction and operation and the materials in the record concerning the circumstances prior to such decisions. Because of the critical nature of such data in determining these basic issues, it is clear that an Applicant has a duty to keep the Commission informed of material changes in circumstances affecting the issues in a case, even during the course of an ongoing hearing, so that the record upon which a decision is to be based will represent accurate and complete information.

8. In the present case, as is set forth below in the text of this Decision, the change in circumstances described above, although it required an entire reevaluation of the record with consequent delays, did not affect the ultimate result as to the need for the Catawba plants. However, this fortuitous circumstance does not negate the obligation of an applicant to keep the Commission fully and accurately informed of all material developments affecting its application during its pendency before the agency.[8]

II. COMPLIANCE OF APPLICATION WITH 10 CFR SECTION 50.34(a)

Description of Proposed Plant

9. The Catawba Nuclear Station[9] will be an almost exact duplication of Applicant's McGuire Nuclear Station now under construction in Mecklenberg County, North Carolina. One Westinghouse pressurized water reactor with a four loop coolant system designed to operate at up to 3,411 Mwt will serve as the Nuclear Steam Supply System for each Catawba Unit. Uranium dioxide fuel pellets enclosed in Zircaloy tubes with welded end caps form fuel rods which are internally pressurized with helium. The reactors are very similar to many other Westinghouse reactors which have been previously reviewed and approved, except that the Catawba reactors will use rods with smaller diameter and thinner walls, and contain less fuel per rod. However, each assembly will be made up of a larger number of rods, viz., 264 rods per assembly, arranged in a 17 x 17 square

[8] See also, in this connection, the Appeal Board's Supplemental Decision, after remand, in the *McGuire* proceeding, *supra*, note 3A, at pp. 625-6, where the Appeal Board admonished Duke Power Company to keep the Commission timely informed of "... new information relevant and material to the matters being adjudicated...," in that instance, of modifications on Applicant's QA organization.

[9] A description of the proposed reactor site and surrounding environment is given in the Supplemental Partial Initial Decision on Site Suitability of May 15, 1974, *supra*, paragraphs 11 through 15.

array rather than 204 rods per assembly in a 15 x 15 array as heretofore. The purpose of this modification is to minimize the possibility and effect of fuel densification.

10. Reactivity is controlled by movable neutron absorbing control rods, soluble neutron absorber (boric acid) in the coolant water, and fixed burnable neutron poison rods. Water will serve as both moderator and coolant and will be circulated through the reactor under high pressure by four coolant pumps. Water heated by the reactor will flow through four steam generators before being pumped back through the reactors. Heat is transferred through tube walls in the steam generator to a secondary water loop where steam is formed, passed through turbines, condensed and repumped to the steam generators. Excess heat is removed by a third water loop and discharged to the atmosphere in cooling towers.

11. The reactor and reactor coolant system are completely enclosed in a freestanding steel containment vessel designed to assure that radioactive leakage in design basis accidents will not result in postulated doses in excess of siting guidelines set forth in 10 CFR 100. This vessel utilizes an ice condenser which will act as a heat sink and thus limit containment pressure in the improbable event of a loss-of-coolant accident ("LOCA"). The containment vessel is enclosed in a reinforced concrete building which is designed to provide both biological shielding and missile protection. (PSAR 1.2.2.4, 6.1, 6.2.1, 6.2.2; SER 1.2, 6.2)

12. The Catawba Nuclear Station incorporates numerous safety features designed for preventing or limiting the consequences of hypothetical accidents, including loss-of-coolant accidents. In addition to the containment structures, these features include (1) the emergency core cooling systems for injecting borated water sufficient to cool the core following a loss-of-coolant accident for any size pipe break; (2) an ice condenser; (3) two independent containment spray systems, each of which is capable of reducing internal containment pressure following a loss-of-coolant accident; (4) an annulus ventilation system which collects and filters gaseous leakage from the containment; (5) a containment air return system for returning the air to the lower containment area and reducing the pressure in the upper compartment of the containment following a loss-of-coolant accident; (6) a containment isolation system for isolating piping, which penetrates the containment, in the event of an accident; (7) an instrumentation and control system which monitors and maintains all important plant operating parameters within prescribed operating ranges and automatically shuts down the reactor should preestablished safety limits be reached; and (8) systems for controlling the accumulation of hydrogen within the containment following a loss-of-coolant accident. (PSAR 6, 6.2.2, 6.2.3, 6.2.4, 6.3, 6.4.1, 6.4.2, 7; SER 6.1, 6.2, 6.3, 7.1)

Documentation, Principal Architectural and Engineering Criteria; Safety Review

13. As part of its application, Applicant has submitted a Preliminary Safety Analysis Report (PSAR) and amendments thereto, containing in-depth technical information directed to radiological health and safety matters. (Applicant's Exhibit 1, Tr. 511)

14. The Preliminary Safety Analysis Report and amendments thereto (App. Exh. 1) have been reviewed by the Regulatory Staff and the Advisory Committee on Reactor Safeguards ("ACRS"). Both the Staff and the ACRS have concluded that there is reasonable assurance that the Catawba Nuclear Station, Units 1 and 2, can be constructed and operated at the proposed site without undue risk to the health and safety of the public. (Staff Exhibit 3, pp. 21-1 and 2, and Appendix B)[10]

15. The Board finds that the Applicant has provided sufficient information and that the Staff has adequately considered, reviewed and evaluated all technical radiological health and safety matters upon which the Board makes findings herein.

16. In particular, the Staff evaluated the predicted functional performance of the Catawba Plant Emergency Core Cooling System (ECCS) for the full spectrum of postulated break sizes up to and including a double-ended break in the largest coolant pipe and found the proposed ECCS to be in accord with the Commission's Interim Policy Statement and acceptance criteria and to be acceptable in regard to a decision concerning issuance of construction permits (6.3.5, SER).[10a] The Board concurred with the Staff's evaluation and published its findings in the December 1974 ECCS SPID.[11]

Common Defense and Security

17. The record shows and the Board finds that the activities to be conducted by Applicant will be within the jurisdiction of the United States. All the directors and principal officers of the Applicant are citizens of the United States. The Applicant is not owned, dominated or controlled by an alien, a foreign corporation or a foreign government. The activities to be conducted do not involve any restricted data. However, Applicant has agreed to safeguard any such

[10] Staff Exh. 3 consists of the Safety Evaluation Report (SER) (issued on October 12, 1973), and the ACRS letter (dated November 13, 1973), and the Staff Supplement to the SER (issued on January 21, 1974).

[10a] The ER containing this statement was published before the recent Commission action requiring applicants who have not received construction permits by December 28, 1974 to comply with 10 CFR 50.46.

[11] It is to be noted, in this connection, that the Applicant filed a Petition for Waiver of 10 CFR 50.46 on December 27, 1974, which the Board denied without prejudice to refiling. Thereafter, Applicant filed a "Renewal of Applicant's Petition for Waiver or Exception for Waiver or Exception Pursuant to 10 CFR Section 2.758," under date of May 13, 1975, which will be dealt with in a separate order.

data that might become involved in accordance with the requirements of 10 CFR Part 50. The Applicant will rely upon obtaining fuel as it is needed from sources of supply available for civilian purposes, so that no diversion of special nuclear material from military purposes is involved. (App. Exh. 1—License Application, pp. 5-7; Staff Exh. 3, SER 19.0) For these reasons, the Board finds that the activities to be performed will not be inimical to the common defense and security.

Technical Qualifications

18. The Applicant's technical qualifications were contested by the Intervenor and its arguments are discussed *infra.*

Emergency Plans

19. The Board has previously found that Applicant's preliminary emergency plan satisfies the requirements of Appendix E to 10 CFR Part 50. (Supplemental Partial Initial Decision on Site Suitability, *supra,* paragraphs 23-25)

Research and Development Required

20. The Board finds that the Nuclear Steam Supply System for the Catawba units is similar to seventeen other large pressurized water reactors now being designed and built by the Westinghouse Electric Corporation for plants being constructed under Commission construction permits. While the Board finds that Staff review of the proposed design of the Catawba facility has been adequate, Applicant, the ACRS and the Staff have identified a number of ongoing investigations to confirm and finalize the design of certain of the plant systems, which include generic design features. The following items were identified by the ACRS in its review as deserving further attention by the Staff:

(a) Final design of the 17 X 17 fuel-rod array;

(b) Studies of the effectiveness of an upperhead injection system for the emergency core cooling system;

(c) Design and specifications for the closed-cycle cooling towers;

(d) Qualification of emergency diesel-generators;

(e) Procedures and criteria for the design of subcompartment structures, divider deck and upper crane;

(f) Effectiveness and reliability of containment spray and return air systems;

(g) Proper testing of circuit design for connection of the offsite power circuits to the onsite power generating system involving generator circuit breakers; and

(h) Generic problems identified in the ACRS letter of December 18, 1972, and more recent ACRS letters.

21. In addition to items (a) through (h), above, Applicant is committed to take those actions required by the Staff[12] to assure that the consequences of an Anticipated Transient Without Scram (ATWS) are adequately limited.

22. The Board finds that those structures, systems and components of the facility which require further analysis, research and development to confirm the adequacy of their design have been identified and that Applicant has either completed or is now committed to a program of analysis, research and/or development adequate to resolve remaining safety questions before completion of construction. The Board also finds that remaining uncertainties and/or problems related to safety appear to be amenable to straightforward engineering solutions, and that neither entirely new invention nor extensive and speculative research or development appears necessary to resolve them.

CONTESTED ISSUES

23. There were eight contested issues based on the Intervenor's contentions, and two issues posed by the Board, that were dealt with during this proceeding. Contentions 1-a, 1-b, 2 and the Board's issue on radiation exposure were addressed in the Partial Initial Decision on Environmental Issues dated April 9, 1974. Contention 3 was addressed in the Supplemental Partial Initial Decision on Site Suitability issued May 14, 1974. Contention 8 was addressed in the Supplemental Partial Initial Decision on Compliance With Interim ECCS Criteria issued December 19, 1974. Contentions 4, 5, 6, 7 and the Board's issue on floods are dealt with for the first time in this decision which is based on the entire record, including those portions covered at the environmental hearings in January–February 1974, the safety hearings in April 1974, and the reopened hearings in February 1975.

24. In the interest of completeness, and since in only two instances is updating or elaboration of the previous decisions not required, each of the above-listed issues will be taken up separately in the sections that follow.

COST-BENEFIT ANALYSIS—NO PLANT ALTERNATIVE; COST OF FUELS

25. Contention 1 reads:

It is contended that the Staff's NEPA cost-benefit analysis is incorrect because (a) the review of alternatives is incomplete, in that it has either failed to consider, or has inadequately considered (1) the alternative of not providing the additional power generated by the proposed facility by not

[12] Paragraph I, B, Appendix A to WASH-1270, Technical Report on Anticipated Transients Without Scram for Water Cooled Power Reactors, September 1973.

constructing a new plant of any type, (2) a decline in the growth of demand for electricity resulting from the termination of promotional advertising programs, national energy conservation programs, excessive reserve margins, changes in utility rate structures, consumer resistance based upon increased rates required by applicant to provide capital for the construction of new generating capacity, consumer resistance based upon unwillingness to purchase power to operate additional electricity consuming devices, the trend to designing structures and appliances less wasteful of energy and saturation in per capita utilization due to declining new uses for electrical power; and (b) changes in the cost of possible fuels in alternate plants over the life of the facility are inadequately considered.

26. This Contention was originally dealt with at length, and findings and conclusions were made by the Board in its Environmental PID. However, as pointed out above, changed circumstances required a reopening of the record on the issue of need for power, an important element of this contention. The Board's findings based on the reopened record evidence are dealt with at length *infra*.

DESIGN BASIS ACCIDENTS

27. Contention 2 reads:

The calculated radioactive effluent releases and doses from the proposed facility as stated in the applicant's environmental report and the staff's final environmental statement ignore the potential release in design basis accidents.

28. In its Environmental PID, the Board found that Contention 2 as framed is clearly without merit but, on its own motion, considered the following two items that had been addressed on the record:

(a) The attempted showing by the Intervenor of special circumstances making permissible consideration of Class 9 accidents in general.

(b) The status of anticipated transients without scram (ATWS) and the relation of this type of accident to our consideration of this Contention.

29. Referring to the first of these items, the Board found that the Intervenor had not made the required showing of special circumstances. Accordingly, consideration of Class 9 accidents in this proceeding was rejected.

30. In regard to the second item, the Board found that the Staff's analysis of ATWS was adequate for the environmental phase of the hearing and that the ATWS problem was not a cause for delay. However, the Board set the following two requirements:

(a) Since the FES issued by the Regulatory Staff did not consider ATWS, the FES will be appropriately supplemented by the pertinent portions of this

hearing record and of the upcoming safety portion of this proceeding. (10 CFR 50, Appendix D Section A-11)

(b) During the safety portion of this hearing, the parties will be required to discuss the availability of technical means for accomplishing the objectives called for in WASH-1270 and the practical feasibility of a timely application of such means to the Catawba reactors. (Environmental PID, *supra,* paragraph 101)

31. Our further consideration of the ATWS problem and findings related thereto will be presented *infra* in the section on Contention 4 where the record dealing with anticipated transients without scram is discussed in detail.

PART 100 SITING CRITERIA

32. Contention 3 reads:

> The site of the proposed facility does not meet Part 100 siting criteria because there has been inadequate consideration of the statement in Section 100.11(3), "where very large cities are involved, a greater distance may be necessary because of total integrated population dose consideration." Further, the calculated doses for design-basis accidents have not been made, and if made, would not meet Part 100 requirements because the doses from an anticipated transient without scram (ATWS) must be considered.

33. In the Board's SPID on Site Suitability, it tentatively found, based on a full consideration of the hearing record compiled at that time, that there is reasonable assurance that the Catawba site is a suitable location for a nuclear power reactor of the general size and type proposed from the standpoint of radiological health and safety considerations under the Atomic Energy Act of 1954 as amended, and rules and regulations of the Commission promulgated by the Commission pursuant thereto. (See SPID, *supra,* paragraph 29(2))

34. Intervenor's Contention 3, quoted above, was considered in detail in the above-mentioned SPID. A study of the hearing record shows that the Intervenor failed to sustain his contention, and this is reflected in the detailed discussion and findings set forth in that decision by the Board.

35. Although the radiological health and safety phase of the hearings had been completed at the time the SPID was issued, the record remained open, additional relevant information was expected, and the findings on related matters contained herein had not then been made. Having now reviewed the complete record and made such findings, the Board makes the following observations, findings, and amendments.

36. In paragraph 22 of the SPID, the Board discussed the applicability of a Staff working paper which proposed a policy statement and regulatory guide on population density around nuclear power plant sites.[13] The Board there held

[13] AEC News Release T-160, issued April 9, 1974, entitled "AEC Makes Public Staff Working Paper on Population Density Around Nuclear Power Plant Sites."

and here reaffirms that the Staff paper did not constitute approved Commission policy and that inquiry into its contents was inappropriate in the circumstances of this proceeding.[14]

37. In support of its June 3, 1974, Petition for Reopening Certain Matters at Issue, Intervenor asserts that "the Planning Commission of the City of Charlotte released during May 1974, its demographic projections for Charlotte and Mecklenburg (County) from the present to the year 1995, at which time a figure of 750,000 is forecast." Although recognizing that this assertion is unsworn and entirely unsupported, the Board has nevertheless reviewed its previous findings that "the size of the population surrounding Catawba is generally in accord with such other approval sites."[15] This finding had been based in part on previous estimates of the Charlotte-Mecklenburg Planning Commission plotted in Figure 2.6 of Staff's Environmental Statement. This plot shows an estimated population from 600,000 to 650,000 in 1990. Extrapolating to 1995 would give an estimate ranging from about 650,000 to about 715,000. While the revised estimate of 750,000 reported by Intervenor is somewhat higher, it does not alter the Board's finding expressed above which the Board now reaffirms.

38. The Board has made certain findings concerning ATWS, in this decision below (paragraph 52). We, therefore, now make the additional findings that conformance with the requirements of Appendix A to WASH-1270 to which Applicant and Staff are committed will assure that any radiological consequences resulting from Anticipated Transients Without Scram will be within the guideline values set forth in 10 CFR Part 100.[16]

39. In paragraph 18 of the Supplemental PID on Site Suitability, the Board addressed the relationship between TID-14844 and Regulatory Guide 1.4. Following a more thorough review of the whole record to date, and in the interests of clarity and completeness, the Board now deletes paragraph 18 in its entirety and replaces it with paragraphs 40 and 41 below.

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[14] The Board notes that in *Porter County Chapter of the Izaak Walton League of America, Inc., et al.* v. *AEC et al.*, ___F.2d___ (7th Cir. 1975) (the so-called *Bailly* case) the Court did consider the Staff working paper here in question. However, the Court did so only after having first determined that the *Bailly* site did not comply with Commission Regulations, and then only as an aid in determining what result should follow from this noncompliance. In view of the fact that the Catawba site does comply with 10 CFR Part 100, the *Bailly* case cannot be taken as authority for now considering the Staff working paper in this proceeding.

[15] Paragraph 21, Site Suitability SPID, *supra*.

[16] As noted in paragraph 95 of the PID on Environmental Issues, Intervenor claims that a Staff statement to the effect that "design basis accidents were equivalent to "maximum credible accidents," misled him into believing that design basis accidents included Class 9 accidents. After rereading TID-14844 and the proposed Annex to Appendix D, 10 CFR 50, in juxtaposition, the Board finds in passing no ambiguity in Staff's statement, and finds it difficult to understand how Intervenor could have so misunderstood.

40. Staff and Applicant witnesses testified that, though still referenced in a Note to 10 CFR 100, the methods and assumptions of TID-14844, dated 1962, were no longer used and had been replaced by those of Regulatory Guide 1.4, issued in June 1973. (Tr. 2982, 2983, 2988, 2990) The Board notes that Regulatory Guide 1.4 is actually not a replacement for TID-14844, but rather a logical extension of it which is compatible with and contemplated by it.[17]

41. Careful reading of TID-14844 establishes that its authors assumed a containment vessel and some form of emergency core cooling to limit fuel melting. They did not, however, assume the use of an ice condenser, or that the containment vessel would itself be surrounded by a reinforced concrete reactor building, or that a forced ventilation system with filters would be used to clean up the air in the annulus between the two. The Catawba design incorporates those features. Applicant has calculated (PSAR at 15.2) and Staff has confirmed (SER at 15.2.5) that the ice condenser, reactor shield building, and annulus ventilation system function to produce a thyroid dose reduction factor of 76 for the LOCA at the low population zone boundary.

42. In summary, the Board finds that the population within all radii of the Catawba site is lower than that surrounding other sites previously approved by the Commission, that the site meets all requirements of 10 CFR Part 100, and is therefore acceptable.

ANTICIPATED TRANSIENT WITHOUT SCRAM (ATWS)

43. Contention 4 reads:

The safety analysis for the proposed facility is deficient in that it does not consider the results of a severe ATWS accident. In particular, it does not

[17] For example, 10 CFR 100, states in pertinent part that: (emphasis supplied throughout this footnote)

100.10: Factors considered in the evaluation of sites include those relating to both the *proposed reactor design* and the characteristics peculiar to the site. . . . in particular, the AEC will take the following factors into consideration. . .:

100.10(a)(4): *The safety features that are to be engineered into the facility and those barriers that must be breached* as a result of an accident before a release of radioactive material to the environment can occur.

The note at the end states in part that "The calculations described in TID-14844 *may* be used as a point of departure for consideration of particular site requirements which may result from evaluation of *the characteristics* of a *particular reactor* . . .

TID-14844 itself makes it clear it provides *guidance.* "For any proposed reactor, the performance experience accumulated elsewhere, the *engineered safeguards,* . . . all are important factors that must be included in the *evaluation* of the suitability of the site (Section I). This document sets forth *one method.* . . . Designers of reactors are expected to examine all significant aspects. . . . (Section I) The assumptions made can be used as a *point of departure* for consideration of particular site requirements resulting from the *evaluation of the characteristics of the particular reactor,* its purpose, and the proposed plan of operation.

adequately consider pressure peaks in an ATWS, and a possible reactor breach which would damage structural elements which direct steam flow through the ice condenser in a loss-of-coolant accident (LOCA).

44. Neither the Applicant's PSAR nor the Staff's SER contains an analysis of ATWS incidents. However, the Staff's Technical Report on Anticipated Transients Without Scram for Water-Cooled Power Reactors, WASH-1270, dated September 1973, does provide descriptions and results of such analyses, the conclusions of Staff and the ACRS based on these results, and a firm program of action to deal with the ATWS problem. This report is available to the public generally, and copies were provided to the Board and all parties in this proceeding.[18] In this sense, safety analyses applicable to Catawba were provided, and the analyses did cover potential coolant pressure peaks.

45. The analyses of WASH-1270 are generic in nature, however, in that they pertain in general terms to all water-cooled power reactors. Moreover, their purpose was to illustrate and define the problem and to provide the basis for Staff's position regarding required future actions. While the possibilities for corrective measures are discussed generally in WASH-1270, it will be necessary for each applicant to make, and for the Staff to review, detailed analyses of each particular plant to determine whether corrective action is required and, if so, whether proposed measures are adequate. In the instant case, the Applicant is committed to the requirements of WASH-1270. (Tr. 2143, 2144) ATWS analyses and reviews are currently in progress.

46. In its Environmental PID (paragraph 101), the Board held that "It is not required that all features of reactor design be decided or that all outstanding problems be resolved before a construction permit is issued, as long as there is a reasonable likelihood that these matters can be satisfactorily disposed of prior to completion of the pertinent construction. In the Board's opinion, ATWS is such a problem and is not a cause for delay." During the radiological health and safety phase of the hearings, the Board undertook to develop a fuller record to test the validity of that condition, e.g., just what steps would be taken, what criteria would apply, when would decisions be made, what were the prospects for successful solutions, and what research and development would be required to verify them. The Board was particularly interested in potential peak primary coolant pressures and resultant reactor vessel closure bolt (stud bolt) stresses because of the interrelation with Intervenor's Contention 6. The record contains substantial evidence in this regard.

47. At the outset, it would be useful to present a summary of those aspects of WASH-1270 which may be helpful in understanding the record and the Board's findings to follow:

[18] The Board previously took official notice of WASH-1270 (PID on Environmental Issues, April 9, 1974, paragraph 99).

(a) Certain failures or malfunctions within nuclear power plants can cause damaging transients in reactor power level and in reactor coolant flow rate, temperature and pressure. For this reason, all nuclear plants incorporate sensors to detect transients and safety systems capable of shutting down the reactor safely. The rapid reactor shutdown system, or "the scram system," as it is commonly known, is one such safety system. For some transients, reactor damage accompanied by release of radioactive material and offsite dose levels in excess of the 10 CFR 100 numerical guides could result if the reactor failed to scram promptly.

(b) Many of these transients are said to be "anticipated" in the sense that the failures or malfunctions which cause them are likely to occur one or more times during the plants's useful life. Hence, it may be necessary to require that nuclear plants employ improved designs or additional engineered safety features to reduce either the probability of scram system failure or the consequences of ATWS, or both.

(c) The Commission has long followed a policy, articulated among other places in 10 CFR 100 and in the proposed Annex to Appendix D of 10 CFR 50,[18a] to the effect that nuclear plants must not only be designed so as to be highly reliable, but must also incorporate engineered safeguards where required to assure that no accident with any reasonable probability of occurrence results in offsite dose levels in excess of the 10 CFR 100 guidelines. In the Staff's terminology, all such accidents fall within the nuclear plant's design basis envelope. At the same time, it has always been recognized that there will be some small residuum of extremely unlikely accidents for which protection need not be provided, even though the radiological consequences offsite could exceed the 10 CFR 100 guides.

(d) In establishing the boundary between accident sequences that are to be within the design basis envelope, and hence for which engineered safety features are provided, and accidents that reasonably may be assigned to that small residuum for which no further protective features are considered necessary, the Regulatory Staff uses the safety objective that the risk to the public from all reactor accidents should be very small compared to other risks of life such as disease or natural catastrophes. The Staff believes this safety objective is met by requiring a design basis accident envelope that extends to very unlikely postulated accidents, and by establishing the further objective that accidents not included in the design basis envelope should have an average recurrence interval of at least a thousand years for all nuclear plants combined.

(e) Statistical studies of estimated scram system failure rate reported in WASH-1270 conclude that, because of the relatively short nuclear power plant

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[18a] These proceedings are subject to the requirements of Appendix D, Part 50. See 10 CFR Section 51.56.

experience to date, one cannot claim with high (95%) confidence that the unreliability or failure probability of current scram systems is less than about one in ten thousand. Since anticipated transients, which could lead to consequences exceeding the 10 CFR 100 guides, have annual probabilities considerably less than one, and since there are less than fifty nuclear power plants now in operation, the Staff believes that its overall objective is currently met. In anticipation of perhaps a thousand plants ultimately, however, the Staff concludes that steps must be taken to improve the reliability of scram systems for future plants by minimizing common mode failures and to limit the consequences of ATWS for current plants and those now in process of design and/or construction. Effective October 1, 1973, the Staff therefore adopted an orderly plan of action set forth in Appendix A to WASH-1270.

48. In the case of the Catawba units, the plan requires the Applicant, among other things, to perform detailed calculations of several specified ATWS events. Where indicated, redesign or additional engineered safety features must be provided to assure that potential radiological consequences of ATWS are held below the guideline values of 10 CFR 100. Moreover, fuel temperature and pressure, containment structure pressures, and stress in components of the primary coolant boundary must be held within specified limits.

49. Applicant is committed to meet these requirements, and its reactor supplier, Westinghouse, has submitted its calculations which are currently under review by the Staff. On the basis of these calculations, Applicant believes that additional consequence limiting features will not be required. (Tr. 2102) Since Staff has not completed its evaluation, its witnesses were unable to testify as to its conclusions. (Tr. 2097, 2104) However, it is the Staff's position that reviews, hearings and decisions on construction permits need not be delayed on account of ATWS, provided that Applicants are committed, as here, to meet the requirements of Appendix A to WASH-1270.

50. Since it is not yet known whether design changes or additional engineered safety features will be required for the Catawba units, both Staff and Applicant witness testified in response to the Board's questioning that straightforward engineering solutions are available if required. For example, of the various ATWS events studied to date, the one giving rise to the highest pressures in the primary coolant results from a loss of feedwater. Should further analysis establish that coolant pressures could become high enough to threaten the structural integrity of components of the primary coolant boundary, which would include reactor vessel closure bolts, one solution available would be simply to increase the capacity of the coolant pressure relief system already part of the existing design.

51. Intervenor did not present a direct case on its contention regarding ATWS but did conduct extensive cross-examination of both Staff and Applicant witnesses. The Board finds that Intervenor's cross-examination did not develop

any information tending to conflict with or shed doubt on the position of Applicant and Staff.[19]

52. The Board believes that the Staff and the ACRS are to be commended for identifying and pursuing the ATWS phenomenon, and for developing and initiating a positive program to effectively deal with the problem.

53. In summary, the Board finds:

(a) That while it is true that analyses of ATWS and Staff reviews are not yet completed, the plan of action required by Appendix A to WASH-1270, to which Applicant and Staff are committed, provides adequate assurance at the construction permit stage that analyses will be completed and satisfactory corrective action taken if indicated.

(b) That if the analyses indicate that design modifications are required to limit the consequences of ATWS, straightforward engineering means are available which could be incorporated within the proposed construction period and which would not appear to require extensive research and development to qualify them for service.

ICE CONDENSER

54. Contention 5 reads:

> The untested lattice frame structure of the ice condenser has a faulty seismic design which may cause its failure in the event of a major seismic event, possibly disabling it for handling a severe LOCA or ATWS. In addition, channeling effects could result from basket collapse, frost formation, or door obstruction, causing containment design pressure to be exceeded.

55. This contention, in regard to ice condensers, was initially a contested issue in this proceeding. However, during the course of the radiological health and safety phase of the hearing, Intervenor indicated its satisfaction with the present ice condenser design and withdrew its contention in this regard. (Tr. 2709-12) The Board has considered the matter independently and concludes that the Staff's review has been adequate.

REACTOR VESSEL CLOSURE STUDS (STUD BOLTS)

56. Contention 6 reads:

> The safety analysis for the proposed facility is deficient because (a) there is inadequate assurance that each stud bolt in the reactor head meets adequate

[19] The record dealing with these matters covered two days of hearing, (see, e.g., Tr. 2117, et seq.) but was so intermixed with repeated objections by Applicant's counsel to Intervenor's line of cross-examination and rulings by the Board that it is infeasible to give direct transcript references to the testimony in this regard.

minimum standards for yield strength; (b) magnitude of the maximum primary tensile component has been inadequately considered; and (c) magnitude of stress on each stud has been inadequately considered, as has the storing of strain energy in the reactor head flange and how it provides the mechanical means by which all stud bolts will fail if a first one fails.

57. In its Memorandum and Order of March 21, 1974 (unpublished), the Board ruled that additional testimony on reactor vessel stud bolts would be allowed to the extent that new information had become available since the *McGuire* decision, referred to above. Thus, Applicant and Staff were directed to consider the stud bolt design in light of new information contained in WASH-1270, Staff's Reactor Operating Experience, ROE-74-3, Regulatory Safety Guide 1.65, and the ACRS letter of January 14, 1974, on Integrity of Reactor Vessels for Light Water Power Reactors. In particular, the Board directed the Staff to provide testimony on whether compliance with the American Society of Mechanical Engineers (ASME) Code, in and of itself, was sufficient to meet the requirements for margin and quality under 10 CFR 50.

58. Staff testimony explained the phenomenon which was described in ROE-74-3 as attributable to a relaxation of the preloading of the vessel head studs and consequent relaxation of the mating surfaces between the reactor vessel and head. (Written Testimony of Staff Witness Bosnak, pp. 3-4, following Tr. 2088) The Board finds that the design of the head stud bolts played no part in the problem described in ROE-74-3. Therefore, the design of the Catawba head stud bolts is not affected by the problem described in ROE-74-3. Intervenor agreed with this assessment. (Tr. 2158)

59. Applicant testified that the stud bolts for the Catawba Unit 1 reactor vessel are designed, fabricated and tested in accordance with the ASME Code, 1971 edition, plus all addenda through the Winter 1971; and that for Catawba Unit 2, which was placed on order later, the studs are designed, fabricated and tested in accordance with the ASME Code, 1971 edition, plus all addenda through Winter of 1972. (Applicant's Exhibit 9 at pages 10-14; Tr. 2236) Charpy-V impact tests for Units 1 and 2 material satisfied ASME Section III and applicable addenda. In October 1973, the Staff issued Regulatory Guide 1.65, "Materials and Inspections for Reactor Closure Studs," which contains recommendations over and above ASME Code requirements. Applicant asserts that it has met all provisions of the Guide with the exception that the number of data points for Charpy notch tests, while in accord with the Guide for Unit 2 studs, is somewhat less than the number recommended in Guide 1.65 for Unit 1 studs. However, the plot made from the 18 specimen data shows the characteristic "S" curve for the stud bolt material permitting a determination of minimum preload temperature, thus meeting the intent of the Guide.

60. The Staff testified that it will not pass upon Applicant's conclusion (that it now meets the criteria in the Guide) until the Staff review is completed at the Final Safety Analysis Report review stage. (Tr. 2097)

61. Paragraph II.B(1)(a)(i) of Appendix A to WASH-1270 requires that, in case of an ATWS, the maximum primary stress must be less than the stress specified in the ASME Code for emergency plant operating conditions. The ASME Code provides that in case of bolting, allowable stress limits for emergency conditions must be the same as for normal conditions. (Staff Witness Bosnak Testimony, p. 3, following Tr. 2088) In light of the Board's findings contained in paragraph 53, *supra,* on the ATWS problem, and since Applicant must meet the requirements of paragraph II.B(1)(a)(i) of Appendix A to WASH-1270 and limit the pressure transient to the value described therein, the Board finds that the design of the head stud bolts is acceptable.

62. Pertinent portions of the ACRS letter of January 14, 1974, on the integrity of reactor vessels were also addressed. Section 3.7.2 of the letter identifies instances of stud bolt cracking or failure caused by excessive material hardness or stress corrosion cracking in the martensitic stainless steel employed. This material will not be used for the Catawba studs which will be fabricated from SA-540 Grade b-24, a high strength alloy which has proved resistant to stress corrosion cracking in other Westinghouse reactors. (Tr. 2252) The studs for Catawba will receive a manganese phosphate coating, an acceptable surface treatment according to Regulatory Guide 1.65. Studs will be moved to the operating deck during refueling to preclude exposure to borated water. Stud holes in the vessel flange will be sealed for the same reason. Visual and other yet to be specified inspections will be performed on the bolts and holes during refueling.

63. Intervenor's cross-examination failed to expose any failure to meet AEC criteria or ASME Code requirements. The Board finds that Applicant meets all AEC and ASME Code requirements related to stud bolts.

64. Although the stud bolt matter was one of the contested issues adjudicated in *McGuire,* the Board permitted Intervenor to pursue the issue here to the extent that presentation and argument were based on new information not available at the time of the *McGuire* hearings. (See Board Memorandum and Order of March 21, 1974, *supra*) In particular, discussion of maximum reactor vessel pressure and commensurate stud bolt stress was limited in *McGuire* to much lower values than here, where pressures in excess of 3,000 psi have been calculated in case of certain ATWS events.

65. Intervenor was interested in a statistical approach to evaluating stud bolt properties and behavior under load. Inasmuch as reactor vessel failure could result in very serious radiological consequences if followed by breach of the containment vessel, and since the Commission criteria require that emphasis be placed commensurate with the importance of the safety function to be performed, and also because a statistical approach is both relatively new and promising, the Board permitted Intervenor to pursue this line as an alternate means of evaluating expected stud bolt performance. However, Intervenor was unable to present any direct case along these lines during the hearings. The

Board granted Intervenor until July 1, 1974, to submit a probabilistic analysis, but again Intervenor was unable to provide such a study. During cross-examination, however, Intervenor attempted to establish that should a severe ATWS caused by a feedwater line rupture occur during reactor startup when thermal stresses are highest, a stud might fail.

66. Intervenor also argued, as in *McGuire,* that if one stud bolt should fail, the load it had carried would be rapidly transferred to the two vicinal bolts. A Westinghouse calculation believed to provide an upper limit to this effect estimates stresses of 65.7 ksi. (Tr. 2311) This compares with an allowable stress limit of 73.6 ksi for normal operating conditions. (Tr. 2311) Since stress is proportional to reactor vessel pressure, Intervenor argues that, under severe ATWS conditions, stress on the vicinal studs would be about 88.7 ksi. This compares to a mean room temperature yield stress for Catawba bolting material in excess of 140 ksi and a mean ultimate tensile strength in excess of 160 ksi.

67. In view of the Board's finding of compliance in paragraph 63 above, and since there is no Commission requirement for statistical stress or materials properties analysis, the Board does not believe it essential that it reach findings on Intervenor's arguments. Nevertheless, the Board makes the following observations:

(a) Inasmuch as–

(1) Conformance to the criteria of Appendix A to WASH-1270 will limit stud bolt stresses in case of ATWS to values less than that of the "emergency conditions" as defined in Section III of the ASME Code; and

(2) Extensive testing, inspection and other quality assurance procedures have and will be followed for Catawba stud bolts; and

(3) The variation in yield and ultimate tensile strength of Catawba stud bolt material is very small,[20] the Board is of the opinion that a statistical analysis would show that the probability of stud bolt failure is vanishingly small, even in the event the reactor fails to scram promptly following an anticipated transient.

(b) The Board recognizes that, should one weak stud nevertheless fail under ATWS conditions, the vicinal nuts could have additional loads applied at much faster rates than the loading rates actually applied during yield and ultimate strength testing. Nevertheless, due to the precautions required by the ASME Code during heat treating, and the subsequent testing required, the Catawba bolting material retains considerable toughness.[21] Moreover, imposed stresses are still much less than yield strength. For these reasons, the Board believes it extremely doubtful that vicinal nuts would fail under these conditions.

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[20] From 1.5% to 2.5% as calculated by the Board from the data of Intervenor's Exhibit 2, Tr. 2847.

[21] Testimony of Bosnak, Tr. 2808.

(c) The Board agrees with Applicant witness Gangloff that one can always conjure up a hypothetical series of improbable failures and events which could lead to calculated pressures sufficiently high to cause the "unzippering" effect Intervenor suggests.[22] However, the Board believes that such hypothetical accidents clearly fall into that small residuum of extremely improbable accidents (Class 9) for which protective measures are either impossible or so impractical and costly as to be deemed unnecessary.

TECHNICAL QUALIFICATIONS AND QUALITY ASSURANCE

68. Contention 7 reads:

> The Applicant lacks the qualifications to operate the proposed facility as evidenced by operations experience of Applicant's Oconee Units 1 and 2 and by the continuing deficiencies in the construction of the McGuire facility and Oconee Units 1, 2, and 3 as shown in the reports of the Directorate of Regulatory Operations.

69. During the course of this proceeding, an extensive record dealing with the past, present and future organization and performance of quality assurance (QA) for Duke Power Company projects has been adduced. This record will be summarized and discussed in the paragraphs that follow.

70. The record of this proceeding shows that the Applicant has had extensive experience in the design, construction and operation of large power plants including its Oconee Nuclear Station, Units 1, 2 and 3, and McGuire Nuclear Station, Units 1 and 2. Many of the Applicant's principal officers and key engineering personnel have had prior nuclear experience as well as extensive experience in these types of generation. (License Application, p. 8 and App. 1B; PSAR, 13.1; SER 1.4, 13.1)

71. The Applicant has described the program and organization for quality assurance in Chapter 17 of the Catawba PSAR and in supplementary written testimony prepared for the safety hearing. (Exhibit A-9) The Commission promulgated 10 CFR 50, Appendix B, setting QA requirements in 1970 during construction of the Oconee reactor and about the time the McGuire PSAR was filed. Since then, the Applicant has implemented its QA program to provide the required independence of employees performing QA work. The program was restructured in January 1973. A further revision aimed at eliminating administrative ties between QA and construction personnel, effective May 1, 1974, is described in detail in Exhibit A-9.[23] Applicant's witnesses responded to a wide

[22] Tr. 2122. See also paragraph 31, Intervenor's Proposed Findings of Fact and Conclusions of Law, June 14, 1974.

[23] Applicant's May 1974 changes in the QA program were described in detail on the record. Although not formally reviewed by the Staff, these changes appear to be organizational in nature and not to constitute substantive changes. The Board, accordingly, feels that it is not necessary to make findings with respect to the May 1974 changes.

variety of Board questions. (Tr. 2395-2422, 2478-86, 2551-2566) The Intervenor conducted extensive cross-examination of the Applicant's witnesses (Tr. 2430-2477), which, although failing to impeach their testimony, did nevertheless serve to emphasize the occurrence of violations of Commission rules at the Oconee and McGuire projects, and the existence of QA problems which were being worked out between the Applicant and the Staff.

72. The Staff, in addition to material in Chapter 17 of its Safety Evaluation Report, provided written testimony on Contention 7. (See Written Testimony of Staff Witnesses Murphy and Cochran, following Tr. 2499) This testimony described in detail the QA problems encountered by Commission inspectors at the Oconee reactor, meetings with Duke Power Company management, and the commitments made to correct the deficiencies. QA problems at the McGuire reactor were also reviewed. There were relatively few violations during the two years of inspections reviewed for McGuire, but these are discussed in detail. The Staff testimony concludes with a summary that is quoted here in full:

> During the period since Appendix B to 10 CFR 50 has been in effect as an AEC regulation, Duke Power Company has continued to upgrade its Quality Assurance program. From time to time, Regulatory Operations has been critical of the progress of upgrading and the lack of effectiveness in implementing the established program. At no time has Regulatory Operations been completely satisfied with every aspect of DPC's implemented program; however, Regulatory Operations has always concluded that the identified deficiencies did not represent a threat to the health and safety of the public.
>
> The corrective actions, including quality assurance program upgrading, related to deficiencies identified during our inspection have been adequate. Regulatory Operations will continue to critically review DPC's program implementation and take appropriate action whenever deficiencies are identified. As discussed in this testimony, the Staff is satisfied that the Applicant has the requisite qualifications to construct and operate the proposed facilities. (Staff Written Testimony, *supra,* at pp. 13-14)

73. The Intervenor's cross-examination of the Staff witnesses (Tr. 2510-12, 2571-88, 2598-2633) was effective in bringing out considerable additional pertinent information about Commission regulatory activities, but failed to weaken the Staff testimony appreciably since the Staff admits that there were QA problems, but contends that they were faced and overcome.

74. The Staff witnesses also responded to several Board questions in regard to Commission QA standards and procedures. (Tr. 2634-40)

75. The Intervenor's only witness on Contention 7 summarized his arguments in support of the contention in what the Board accepted as an opening statement. (Tr. 2641-3) He then presented a verbal summary of data from the AEC Division of Regulatory Operations (DRO) inspection reports for the

Oconee and McGuire reactors, quoted portions of the *McGuire* hearing record, and requested that official notice be taken of parts of the *McGuire* record and of the Intervenor's findings of fact and conclusions of law related thereto. (Tr. 2648-52) The parties agreed to a stipulated explanation of an incident involving plant security. (Tr. 2766-7) Both Applicant and Staff challenged the Intervenor's analysis of the DRO reports and registered doubts regarding the pertinence of the proffered Oconee and McGuire data. (Tr. 2668-72, 2765)

76. After the parties and the Board had reviewed the record, the Staff and the Intervenor were allowed to provide revised, and in some respects divergent, analyses of the DRO reports as exhibits. (Staff Exhibit S-4, Intervenor Exhibit I-4) The Intervenor submitted a number of AEC inspection reports and letters dealing with QA deficiencies at the Oconee reactors. (Intervenor Exhibits I-5A, B, C, D, E and F) With the Board's permission, the Applicant later submitted a motion to strike or, in the alternative, to receive additional materials. (Tr. 3081) The motion to strike was denied, but the additional materials were accepted.[24] They consisted of letters and reports from Duke Power Company to the AEC prepared in response to the documents in Exhibit I-5.

77. The Intervenor requested permission to submit portions of his QA brief for the *McGuire* proceedings in support of his contention. This material was accepted, not as evidence, but as explanatory material for the assistance of the Board. (Tr. 3087-90)

78. The Board has carefully reviewed the documents in the record dealing with alleged failures to comply with Commission regulations and standards at Oconee and McGuire. Taken as a whole, they confirm the Staff's evaluation which has been quoted above; i.e., that there were violations and concerns, that Applicant's response was adequate, and that there has been a continuous improvement in Applicant's QA performance.

79. In response to Board questions posed at the prehearing conference of April 16, 1974 (Tr. 2017-18), both the Staff and the Applicant gave testimony dealing with the results and impact of American Society of Mechanical Engineers (ASME) standards and inspections of QA. (Tr. 2401-22, 2504-9) The testimony discussed in detail two ASME inspections that resulted in conflicting conclusions and 14 criticisms of Applicant's QA organization submitted as a result of the second inspection. (See April 10, 1974, letter from Lee to Giambusso and attached ASME letter, previously distributed to the parties.) Both the Staff and the Intervenor cross-examined the Applicant on this matter. (Tr. 2427-9, 2453-63)

80. The record shows that the ASME inspections, while disagreeing about organization, found no fault with QA performance by Applicant and that the ASME criticisms have been satisfactorily responded to. Based on a survey made

[24] See Hearing Conference of November 1, 1974, *supra*, at Tr. 52 and Board Memorandum and Order of November 14, 1974, *supra*.

on May 1, 2 and 3, 1974, the ASME has issued the required certificates. The Applicant has submitted as ASME letter dated May 23, 1974, taking this action, and the Board has accepted this into evidence by its Memorandum and Order of November 14, 1974.

Board Findings on Technical Qualifications and Quality Assurance

81. Based upon the entire record of this proceeding, which has been summarized above, the Board finds that:

(a) Numerous QA deficiencies have occurred at the Oconee and McGuire reactors.

(b) The bulk of these deficiencies related either directly or indirectly to weaknesses in the Applicant's QA organization and that the deficiencies have, for the most part, been corrected.

(c) The Applicant has improved its QA program over the years and the program now in effect, corporate-wide, is generally a result of changes made in January 1973 and May 1974. The 1973 QA changes restructured the program and organization to replace the individual project oriented program in effect at Oconee with one providing increased independence for QA personnel. The QA program in effect for Catawba is markedly different from that which originally existed at either Oconee or McGuire.

(d) Early inspections for Catawba have confirmed that the program and organization concepts identified by the Applicant were implemented as described in the Catawba application and were effective in overall control of the quality design, procurement and construction and that the QA program is a functioning program and meets the requirements of 10 CFR 50, Appendix B.

(e) Applicant's restructured QA program and organization of January 1, 1973, were the subject of a remand in the *McGuire* proceeding by the Appeal Board on June 13, 1973. (ALAB-128, RAI-73-6, 399) The Staff approved the organization and program with respect to 10 CFR 50, App. B, and the Appeal Board, acting upon the record certified to it by the Licensing Board pursuant to the remand, upheld this finding in its Supplemental Decision of September 6, 1973. (ALAB-143, RAI-73-9, 623)

(f) Applicant's QA personnel have sufficient authority, organizational freedom and independence to perform their duties as contemplated by the Commission's Memorandum and Order of December 7, 1973, in *Commonwealth Edison Company* (La Salle County Nuclear Station, Units 1 and 2), CLI-73-32, RAI-73-12, 1072.

(g) The evidence in this record with regard to Applicant's performance during the construction and operation at the Oconee plant, its performance during the construction of the McGuire plant, and its activities to date with respect to the Catawba application do not support the assertions in Intervenor's Contention 7.

(h) QA deficiencies by Applicant which have occurred in the past did not represent a threat to the health and safety of the public.

82. After a careful consideration of the written and oral testimony and the replies to the Board's own questions in this record, the Board finds that the QA program of the Applicant meets the requirements established by the Commission and that the full record shows that the Applicant is technically qualified to design and construct the Catawba facility.

BORATE SCALE

83. Contention 8 reads:

> Faulty valve operation due to borate scale formation materially decreases the probability of proper operation of safety systems in the event of an ATWS or a LOCA.

84. Evidence bearing on this contention was evaluated in the Board's Supplementary Partial Initial Decision on compliance with ECCS criteria, issued December 19, 1974. The Board found at that time:

(a) That the Staff's review has been adequate and sufficient to establish that the proposed ECCS is in accord with the AEC's Interim Policy Statement and meets the interim criteria.

(b) That the precautions that will be taken (including design considerations, concentration and temperature controls, leak detection, testing and inspections) give reasonable assurance that borate scale will not materially affect the reliability of valves in either the normal or emergency cooling systems. (RAI-74-12, 1117 at p. 1122)

85. Our further consideration of the entire record and of the other contested issues has revealed no evidence on this subject not previously considered. Accordingly, the portions of the above-mentioned partial initial decision dealing with the borate scale problem are incorporated in the instant decision, and the findings quoted above are reaffirmed herein.

86. During the course of the environmental hearings, the Board requested the parties to address themselves to the following issues:

Board Issue on Bridgewater Dam Failure

87. In its Memorandum and Order of January 15, 1974 (RAI-74-1, 82, at p. 97), the Board asked the Staff to:

> . . . provide additional information with regard to its analysis of floods in the Safety Evaluation Report to include discussion of the possibility and consequences of a case whereby the failure of the Bridgewater dam initiates a wave breaching the downstream dams.

88. A Staff witness provided testimony on this subject which was clarified in response to Board questioning. (See Written Testimony of Staff Witness Hale, following Tr. 2714, Tr. 2716-18) The evidence shows that failure of the Bridgewater dam would not cause extensive damage to the dams downstream by a wall of water (bore) going down the river. Due to the topography between the dams and the existence of pondage upstream from each dam, the water level in each reservoir would rise gradually and eventually overtop the dam for that reservoir.

89. The Board finds that the Staff's analysis of the consequences of a postulated failure of the Bridgewater dam is acceptable and that such consequences will not adversely affect the Catawba site or the successful operation of the Catawba facility.[25]

Board Issue on Radiation Exposures

90. Whether, with respect to routine operations and possible accidents, the radiation exposures due to effluent releases have been properly considered in the Environmental Statement in arriving at a cost-benefit balancing.

91. Evidence was presented on this matter during the environmental phase of the hearings and was discussed in the Board's Partial Initial Decision on Environmental Issues, dated April 9, 1974. The Board's findings at that time were as follows:

(a) The anticipated effects of plant effluents are so small as to have no significant impact on cost-benefit balancing.

(b) Radiation exposures due to plant effluent releases have been adequately considered in arriving at a cost-benefit balancing in the Final Environmental Statement.

(c) The Board agrees with the Applicant's position in regard to the applicability of ALAB-161 and ALAB-175, but notes that its consideration of this issue has been in accord with its special objective stated above. (RAI-74-4, 659, at p. 689)

[25] In its petition of June 3, 1974, for reopening of certain matters at issue, Intervenor contended that failure of the Lake Tahoma dam, located upstream from the Bridgewater dam, should have been considered and that the record should be reopened for this purpose, *inter alia.* The Board declined to do so, since this matter could have been raised at the time of the hearing and was not encompassed by the Board's issue. The Board notes, however, based on an examination of Section 2.4.4.2 of the PSAR and a consideration of the Applicant's response of June 7, 1974, to the Intervenor's petition, that the Tahoma dam is located 18.6 miles upstream from the Bridgewater dam and that the water impounded by it is a small fraction of that impounded by the Bridgewater dam. Thus, failure of the Tahoma dam would have a negligible effect in addition to those already considered in this record.

92. The Board finds no additional evidence bearing significantly on this issue in the record of the ensuing safety hearings of April 1974 or in the reopened hearings of February 1975. Accordingly, the portions of the above-mentioned partial initial decision dealing with this Board issue, and the findings quoted above, are reaffirmed herein.

Design Objectives for Equipment to Control Releases of Radioactive Material in Effluents

93. Section 50.34a of 10 CFR 50 requires the Applicant to describe the preliminary design of equipment for control of liquid and gaseous effluents, and this was done in the PSAR. Since the Catawba application was filed after January 2, 1971, Section 50.34a also requires the identification of design objectives and the means to be employed for keeping levels of radioactive material to unrestricted areas as low as practicable. The evidence in this proceeding shows that advanced technology for control of liquid and gaseous effluents has been employed, including 100% holdup of gaseous effluents for the life of the plant except for leaks and spills. The Staff has reviewed these facilities and has concluded that the requirements of 10 CFR 50.34a have been met and that effluent levels will be as low as practicable. (PSAR, Chapter 11; SER, Chapter 11)

94. The Commission, on April 30, 1975, issued Appendix I to 10 CFR 50, providing numerical guides for design objectives to keep radioactivity in effluents as low as practicable. This Appendix became effective June 4, 1975, and applies to the Catawba proceeding, since no construction permit had been granted by that date. An examination of the record in this proceeding reveals that the design of the waste control facilities for Catawba does, in fact, come within the numerical guides of Appendix I, although the detailed guidelines in Appendix I are not, and could not have been, addressed in the hearing which was concluded prior to the issuance of Appendix I. The Staff's review of the Catawba application was based on the *proposed* numerical guides, which have not been greatly changed in the Appendix, as adopted by the Commission. However, Appendix I does incorporate *some* changes, and, hence, it is appropriate to compare the Catawba design with the specific numerical guides of Appendix I as now in effect.

95. The Catawba liquid waste system is designed to keep offsite doses to the whole body or any organ, due to the combined effect of both reactors, at or below 5 mrem/year. (SER Section 11.2) Actual doses for the whole facility, predicted by the Applicant, total 2.7 mrem/year or less. (E.R. Table 5.3) Appendix I sets a numerical guide of 3 mrem/year *per reactor;* thus, the Catawba liquid effluents are as low as practicable based on the Appendix I guidance.

96. Similarly, the Appendix I value of not over 5 mrem/year per reactor to the whole body due to gaseous effluents is met, since the design was based on not over 5 mrem/year for the combined effect of both reactors.

97. For iodine and particulates, the Appendix I value is 15 mrem/year per reactor to any organ. The Staff has required the Applicant to utilize state-of-the-art technology in processing radioactive effluents prior to release, including high efficiency air particulate filters and charcoal filters for iodine, and has concluded that the releases will be as low as practicable. (FES, Section 3.5.2; PSAR, Section 11.7.1; SER, 11.3) The Applicant estimates that the maximum dose to a child's thyroid from gaseous effluents, due to the pasture–cow–milk pathway, will be 23 mrem per year due to both reactors, using the conservative assumptions required for such computations, but predicts that actual releases will result in a maximum dose of only 2.3 mrem per year. Thus, Appendix I is satisfied insofar as iodine activity is concerned. The dose due to particulates is not separately addressed in the record. However, the use of state-of-the-art filtration by high efficiency particulate filters and charcoal absorbers, already referred to, assures that releases of particulates will be as low as practicable.

98. Appendix I requires reducing population dose within 50 miles by use of all available technology having a favorable cost-benefit ratio based on an assumed cost of $1,000 per man-rem. The specification of a definite dollar value for a man-rem is new, and such a value was not specifically used in the Catawba cost-benefit balancing. However, since the population exposure within 50 miles is estimated to be only 20 man-rem, and expensive advanced technology for effluent control is already being used, it is clear that additional reductions in population exposures would be expensive and cost substantially more than the reduction in the $20,000 impact derivable from the $1,000 per man-rem figure in Appendix I.

99. The Board finds, therefore, that all requirements of 10 CFR 50 related to maintaining the radioactivity in effluents as low as practicable, including those recently set forth in Appendix I, have been met.

III. REOPENED RECORD ON NEED FOR POWER AND FINANCIAL QUALIFICATIONS

Introduction and Background

100. The question of whether or not the proposed Catawba plant will be needed to meet projected power demand and/or provide necessary reserve capacity was considered at length during the environmental phase of these proceedings in January and February 1974 (see Env. PID, April 1974, *supra,* paragraphs 38 through 78.) After considering the reasonableness of forecasts of peak power demand made by all the parties, the necessity for reserve capacity, and the potential impact of both conservation and economic recession, the Board found in its first Partial Initial Decision ". . . that the Catawba units will clearly be required, if not on Applicant's schedule, then no more than 12 to 18 months later. (*Ibid.*, par. 78)

101. As pointed out above in the Introduction to this decision, approximately six months after the environmental hearings were held, the Applicant advised the Board and the parties that it had elected to defer scheduled commercial operation of the Catawba units by approximately two years. Record high interest rates, tight money market, adequacy of electric rates, and strong indications of moderating rates of growth in electric energy demand in the near term were among the factors influencing this decision.[26] In conjunction with the two-year schedule delay, Applicant's cost estimate for construction of the Catawba Nuclear Station jumped dramatically from about $665,000,000 to a little over one billion dollars. Believing the factors for the delay cited by the Applicant to be of sufficient import, and recognizing the close relation between revenues from future sales of electricity and Applicant's financial ability to construct the plant successfully, the Board reopened the record on "need for power" and financial qualifications and heard extensive additional testimony on these matters. The positions of the parties, the most significant elements of these issues, and the Board's views and findings are summarized below.

102. The Board, pursuant to its November 14, 1974, Memorandum and Order, permitted certain additional discovery to be conducted and held an evidentiary hearing on the reopened issues in Charlotte, North Carolina, from February 18 through 21 and 24 through 28, 1975. At this hearing all parties were represented by counsel,[27] and the hearing proceeded to an orderly and expeditious conclusion. As a result of these hearings, the Board finds it necessary to make new findings in respect to need for power from the proposed facility. These new findings are set forth herein, and to the extent that they are inconsistent with the Board's findings contained in its April 1974 Partial Initial Decision, the prior findings are hereby superseded.

103. With regard to the reopened hearing, the Board also feels it necessary to comment on the nature of the presentations made by the parties. Before a construction permit may be authorized by a licensing board, important findings are required by the National Environmental Policy Act of 1969. Of equal or perhaps even weightier importance are the findings required by the Atomic Energy Act of 1954. In making these findings, a board must judge the evidence and must assure itself that the findings so made not only are supported by substantial evidence in the record, but are in accord with the public interest criteria set forth in the statutes which govern the proceeding. The Board is not a combination of judge and jury. It may not simply "sit back like an umpire,

[26] See telegram from Applicant dated August 20, 1974, and affidavit of W. S. Lee, Sept. 12, 1974, referred to in Board's Memorandum and Order of November 14, 1974, *supra.*

[27] CESG was represented by George S. Daly, Jr., Esq., who entered an appearance after the Board reopened the record on November 14, 1974.

blandly calling balls and strikes for adversaries appearing before it"[28] and, at the conclusion of the contest, declare the winner based on no more than the thoroughness of his preparation and presentation and the skill of his counsel.[29] Were that all that is required of a board, this proceeding would have been terminated long ago. Rather, a board must, in order to carry out its public interest obligations, ensure that the parties place on the record sufficient facts on which to base a reasoned conclusion.[30] In completing such a record, this Board has actively sought, with varying degrees of success, the thoughtful analyses of the parties with respect to the facts as they exist. However, the Applicant, for reasons best known only to it, was reluctant to furnish such an analysis, relying instead on the proposition that its assessment as to the reopened issues had the effect of satisfying its burden, despite the fact that only a few months prior to the hearing it had been forced by circumstances, predicted in part by CESG in the original environmental hearings, to substantially revise its plans for construction of the facility. CESG, on the other hand, prepared extensive analyses of the facts tending to refute the Applicant's conclusions and took the position that these analyses, taken together with certain facts concerning the Applicant's conclusions elicited on cross-examination, demonstrated that Applicant had not, in fact, satisfied its burden that the application should be granted.

104. While it is true that who is right and who is wrong will very often emerge from the jarring of competing interests in an adversary forum, it is not this Board's function merely to determine whose position is the more reasonable and plausible.[31] Rather, the Board must seek to decide the controversy as correctly as possible from the point of view of the public interest. In this context, the Board finds that the conclusions of neither the Applicant nor CESG advanced at the reopened hearing represent such a resolution of the contro-

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[28] *Scenic Hudson Preservation Conference* v. *FPC*, 354 F.2d 608 at 620 (2nd Cir. 1965); *Cert. den sub nom. Consolidated Edison Co.* v. *Scenic Hudson Preservation Conference*, 384 U.S. 941, 86 S.Ct. 1462, 16 L.Ed. 540.

[29] *Cf. Pinellas Broadcasting Co.* v. *F.C.C.*, 230 F.2d 204 (D.C. Cir. 1956), *cert. den.* 350 U.S. 1007, 76 S.Ct. 650, 100 L.Ed. 869 (1956), where Judge Bazelon, dissenting, noted that "[t]he Commission's role is not merely that of a referee in an adversary proceeding, who scores points only upon the issues selected by the individual contestants and gives the decision to the highest scorer." 230 F.2d at 211.

[30] For the proposition that an administrative agency must ensure that the record is complete, see *Scenic Hudson Preservation Conference* v. *FPC, supra,* note 28; *Calvert Cliffs Coordinating Committee* v. *AEC*, 449 F.2d 1109 (D.C. Cir. 1971); *Clarksburg Publishing Co.* v. *FCC*, 225 F.2d 511 (D.C. Cir. 1955).

[31] *Cf. Northern Natural Gas Co.* v. *FPC*, 399 F.2d 953 (D.C. Cir. 1968); *Michigan Consolidated Gas Co.* v. *FPC*, 283 F.2d 204 (D.C. Cir. 1960); *cert. den.* 364 U.S. 913, 81 S.Ct. 276, 56 L.Ed. 2d 227; *Clarksburg Publishing Co.* v. *FCC, supra,* note 30.

versy.[32] The Board has, therefore, undertaken its own analysis of the basic facts and, rather than deciding the reopened issues on the basis of who had made a better case, the Board has independently evaluated the facts of record and reached what it believes to be reasonable conclusions in regard to them.

NEED FOR POWER

Recent Experience and Applicant's Revised Forecasts

105. From 1966 through 1973, the peak power demand on Applicant's system grew at a compound rate slightly above 10% per year, reaching a level of 8,236 MW in August of 1973. During 1974, however, peak summer demand dropped about 2% to 8,058 MW. Although winter peak loads were somewhat lower than summer peaks in 1973 and 1974, the peak load for December 1974 exceeded the 1973 winter peak by 2.2%.

106. During the past year, Applicant has twice lowered its forecast of peak power demand. (Numbers in parentheses are the percent change over the previous year as calculated by the Board.)

Year	Applicant's Original Forecast[33]	Applicant's Aug. 20, 1974, Forecast[34]	Applicant's Dec. 23, 1974, Forecast[34]
1975	9,889	9,272	8,633
1976	10,724 (8.4)	10,046 (8.3)	9,721 (12.6)
1977	11,602 (8.2)	10,860 (8.0)	10,512 (8.1)
1978	12,526 (8.0)	11,714 (7.9)	11,341 (7.9)
1979	13,500 (7.8)	12,610 (7.6)	12,209 (7.7)
1980	14,524 (7.6)	13,551 (7.4)	13,119 (7.5)
1981		14,538 (7.3)	14,073 (7.3)
1982		15,575 (7.1)	15,074 (7.1)

[32] In this connection, the statement of Mr. Justice Brennan concurring in *Baltimore & Ohio R. Co.* v. *U.S.*, 386 U.S. 372, 87 S.Ct. 1100, 18 L.Ed. 2d 159 (1967), is of interest for its characterization of the reason why the ICC should not place reliance on the fact that certain parties appearing before it, following their estimation of their own best interest, chose not to bring certain matters to the Commission's attention: "Ultimately, however, the reason reliance upon the estimates of railroads of their own best interests is objectionable is simply that the best interests of the railroads are not necessarily consistent with the public interest, and it is the latter which the Commission is directed to advance." 386 U.S. at 436, 18 L.Ed. 2d at 198.

[33] Paragraph 44, Environmental PID, *supra.*

[34] Advance written testimony of Franz W. Beyer, DPC, February 5, 1975, incorporated as if read following Tr. 3640.

Assuming the drop experienced in 1974 was due to the general economic recession, the oil embargo and its aftermath, and related conservation measures (as well as mild weather), the latest forecast implies a sizable (7.1%) step toward recovery in 1975, followed by a large increase in 1976.[35] In 1977 and years following, growth rates essentially follow prerecession trends according to Applicant's forecast.

107. To some extent, the downward revision of Applicant's peak power forecasts, to account for the recession, has been offset by a lowered generating capability. Applicant's total generating capacity was expected to be 15,674 MW before the Catawba units became operational and 18,034 MW thereafter.[36] During the last year, however, Applicant has removed several small plants from service and has derated others so that expected generating capacity before Catawba is now stated as 14,782 MW.[37] This reduction of 892 MW is very nearly equal to the growth previously predicted for the 1974 recession year.

108. It is important to note at this point that should future growth indeed follow the pattern forecast by the Applicant, its available reserve would almost disappear in 1981, and would become negative in 1982, unless additional generating capacity is provided early in 1981. Applicant,[38] Staff,[39] the Federal Power Commission,[40] and this Board[41] all agree, however, that a reserve of 3,000–4,000 MW is required, especially when planning the timing of new capacity additions. To maintain a nominal reserve of 3,400 MW, for example, new generating capacity will be required in the spring of 1981, even if there is no growth at all in 1975, followed by the equivalent of 6% per year thereafter. Similarly, a growth rate of 4.5% per year following no growth in 1975 would require new capacity in the spring of 1983.[42]

109. Staff Witness Cleary presented the results of two entirely independent forecasts of growth in electrical usage and power demand for the Nation as a whole, and of an economic forecast for the rough equivalent of Applicant's service area.[43] The very comprehensive Project Independence Report issued in November 1974 by the Federal Energy Administration predicts annual com-

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[35] During a depressed economic period, industries curtail production and, thus, the use of electrical energy. The usage capability still exists, however. If the economic climate improves and permits rapid resumption of production, a sizable increase over a previously depressed year is to be expected and does not represent growth *per se.*

[36] Paragraph 53, Environmental PID, *supra.*

[37] See Beyer, *supra,* note 34, at page 5.

[38] See Beyer, *supra,* note 34, at p. 4.

[39] Advanced written testimony of Donald P. Cleary, NRC, December 19, 1974, incorporated as if read following Tr. 3831.

[40] Testimony of Dennis Nightingale, FPC, pp. 4, 5, following Tr. 905.

[41] Paragraphs 54 through 61, Environmental PID, *supra.*

[42] The foregoing is based on the Board's own calculations.

[43] See Cleary, *supra,* note 39.

pound growth rates in electrical demand of 6.3% between 1973 and 1985. Alternatively, if the Federal Government takes action to redistribute energy consumption to electricity generated by domestic coal and uranium fuels, a 7.4% rate is projected. These estimates assume $11/BBL oil prices and substantial consumer resistance to expected price increases. (See paragraph 128 et seq. below re price elasticity.)

110. Cleary then introduced results of the OBERS Projections, Regional Economic Activity in the U. S. April 1974,[44] which indicate that considerably higher economic growth can be expected for Applicant's area than for the Nation at large.

111. While the Board finds this testimony very useful, it observes that both the FEA Project Independence Report and the OBERS Projections were issued in November 1974 and April 1974, respectively, before there was much consensus in the Federal Government that the economy had entered a period of recession. Neither of these reports is very helpful, therefore, in estimating the depth and duration of the recession, the likely rate of recovery from it, or whether its root causes will significantly affect growth following recovery.

112. During the first hearings on need for power early in 1974, Intervenor presented its own forecast of peak power demand. Its projection assumed that the period of most rapid growth has already passed and that growth rates will diminish continuously in the future.[45] In October 1974, Intervenor also revised its estimate downward, in its case by about 400 MW, but retained the general shape of the curve. These forecasts would also indicate need for additional capacity in 1981 and 1983, respectively, to maintain a 3,400 MW reserve.

113. During the reopened hearings in 1975, all of the testimony of Intervenor was presented by Mr. Jesse L. Riley, its president.[46] The bulk of this material simply repeats or extends arguments made during the earlier hearings on this issue.[47] These arguments are much better supported this time, however, with the results of extensive analyses of DPC raw data obtained via discovery. Although already adjudicated for the most part, the Board allowed these points to be re-argued so as to have the benefit of detailed factual experience in the DPC system during the intervening year, and because that experience, coupled with the substantial changes in the national economic and energy pictures, may have modified the interpretations and perceptions of the parties and the Board. The Board understands the thrust of all of these arguments to be that future growth rates will fall short of Applicant's predictions which are based on a

[44] U.S. Department of Commerce and U.S. Department of Agriculture publication.

[45] See discussion in paragraphs 48 and 49 of Environmental PID, *supra.*

[46] For the advanced written portion of his testimony, see Partial Testimony of Jesse Riley, for Intervenor, Intervenor's Exhibit 6A with supporting figures attached as 6B, tables as 6C, and newspaper articles as 6D, Tr. 3546.

[47] Figures 1 through 24 of Intervenor's Exhibit 6B.

continuation of prerecession trends. A brief summary of each of these arguments follows.

114. Intervenor again advances the truism that growth cannot continue forever at a constant compound growth rate. While obviously true, as stated, there is no reason that exponential growth cannot continue for a finite period. As a matter of fact, it has often done so in the DPC area.[48] Moreover, Applicant's forecasts are based on declining rather than constant compound growth rates. (See Table following paragraph 106, above.)

115. Applicant interprets its total winter and summer loads by dividing into two parts: base load and temperature responsive load. The temperature responsive portion is further interpreted into "actual" and "probable" based on the degree days experienced. Intervenor argues that the temperature responsive portion is easily subject to conservation by thermostat adjustment, and that there has been a decided moderation of previous trends in the 1970's.[49]

116. Intervenor again argues (page 3 of Exhibit 6A) that the mathematical function it selected fits past data better than an exponential, thus implying that it provides more reliable extrapolations. However, Intervenor also argues that the rapid rise in the cost of electricity, the current economic recession, etc., represent fundamental changes which would invalidate simple extrapolations using any smooth, continuous mathematical function.

117. Intervenor also presented curves, based on information furnished by the Applicant in response to discovery requests, which indicate the fraction of Applicant's residential customers equipped with air conditioning.[50] In 1972, the fraction varied from 29% for standard residential customers (R class) to 58% for all-electric homes (RA class). Intervenor assumes some additional growth before saturation is reached at 44% for R and 62% for RA,[51] whereas Applicant predicts 66% and 82%, respectively. The Board agrees that saturation in air conditioning and other standard appliances will likely be reached for all practical purposes within 10 to 15 years, but seriously doubts that the differences in percentages assumed by Applicant and Intervenor are significant in terms of the problem at hand.

118. As in the earlier (1974) hearings on need for power, Intervenor again presented results of conservation efforts reported by selected private and Government organizations.[52] The Board finds nothing in this new information which would influence it to alter its opinions as expressed in paragraphs 67

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[48] See, for example, the straight line portions of Figures 2, 18 and 20, Intervenor's Exhibit 6B.

[49] See Riley, Note 46, *supra*, at p. 6.

[50] Figure 28, Intervenor's Exhibit 6B, Note 46, *supra*.

[51] There is a discrepancy in the assumed percentages at saturation between Intervenor's written testimony (Exhibit 6A at page 10) and its Figure 28 (*ibid.*).

[52] See, for example, Riley, Note 46, *supra*, Exh. 6A at p. 7.

through 75 of its Partial Initial Decision of April 9, 1974. We do note, however, that reductions in usage of electrical energy and/or power demand ascribed to "conservation" are inseparable from those resulting from price response as discussed in paragraph 128 et seq. below. Moreover, the onset of recent sharp jumps in the real price[53] of electricity and the current economic recession occurred at essentially the same time and still continue together. Thus, it is also very difficult to separate out their individual impacts on the reductions in usage and power demand that Applicant has recently experienced. There is one point, however, which we wish to emphasize at this juncture. On the one hand, Applicant argues that while efforts to conserve may well reduce usage of electrical energy, they are not likely to reduce peak power demand.[54] On the other hand, Intervenor argues that conservation achieved by such means as added insulation and more efficient machinery do reduce peak demand as well as electrical energy usage. The Board finds both arguments valid and sees no conflict between them. It is rather obvious, however, that the net effect of conservation efforts, for whatever motive, will tend to reduce usage more than peak demand.

119. To offset the trend toward increases in the ratio of peak power demand to total energy usage as just discussed, Applicant states that it is considering various load leveling techniques, i.e., positive steps aimed at depressing the peak load.[55] Especially during the earlier (1974) hearings, Intervenor strongly urged the adoption of such techniques. Staff witness Cleary expressed his personal opinion that "nationally, load leveling efforts will be only partially successful in reducing the peak load growth rate to that of energy consumption."[56] The Board tends to agree. Unfortunately, the record is void of any real analysis of the degree of load leveling which reasonably could be achieved. Nevertheless, we see little in the forces of the market place which would motivate either the Applicant or its customers to voluntarily accept the restrictions and costs entailed by such measures. On the other hand, we can envision that certain load leveling techniques might well be quite effective if they resulted from new public policy and law at Federal and/or State levels. There is no hint of such prospect in the record, however.

120. Intervenor points out that the cost of nuclear fuel has already increased since the Environmental Statement was written and provides information indicating that it will continue to rise in the future.[57] Nevertheless, CESG does

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[53] The expression "real price" as used herein means at constant dollar value, i.e., with inflationary effects factored out.

[54] See Tr. 3691-92 and 3885 for examples.

[55] Affidavit of W. S. Lee, Note 26, *supra*, at p. 4.

[56] See Cleary, Note 39, *supra*, at p. 12.

[57] For a succinct summary of Intervenor's position regarding the cost of nuclear fuel and its implications, see Intervenor's Proposed Findings of Fact, Conclusions of Law, and Order, par. 14.

not contest that electricity can be produced more cheaply by nuclear than by fossil fuel plants.[58] Intervenor's argument is that the majority of electricity sold by Applicant is from coal fired plants, that rates charged during construction must therefore reflect the cost of coal, however high, and that by the time a nuclear plant can be brought on line, sales will be so depressed because of high costs that the apparent need for the plant will have evaporated. Implicit in this and in many other arguments pursued by the Intervenor is that the "no-plant alternative" is the better alternative.[59] For reasons discussed in paragraphs 128 through 132, below, the Board does not agree that customer response to rising costs for electricity will be so great as to depress sales to the point where new generating capability will no longer be required. Nor does the forecast fuel cost information presented by CESG give us reason to reconsider our previous judgment that a nuclear plant is a better alternative to providing that new generating capacity than a coal fired plant. (See paragraphs 92, 110 (1) and (2), and 117 of the Partial Initial Decision of April 9, 1974.)

121. In general, the Board finds Intervenor's testimony persuasive insofar as it indicates that the foregoing factors will tend to reduce future growth rates in peak power demand. The unanswered question, however, is "How much?" As previously noted, Applicant's projected postrecession growth rates are already significantly lower than prerecession experience. Moreover, if Applicant's currently projected growth rates were considerably lower, they would still indicate a need for new generating capacity by 1981. Finally, the Board believes that, in comparison, three other issues which we now discuss are of much greater decisional significance than those considered in the previous paragraphs.

The Current Economic Recession

122. Both Applicant and Staff treat the current economic recession as a temporary, cyclical phenomenon of minimal significance to long-range forecasting.[60] Applicant, in fact, forecasts a 7.1% increase in 1975 in peak power demand over the level experienced in 1974, and 12.6% in the following year (par. 106, above). Intervenor, on the other hand, is quite pessimistic about the time of upturn and the rate and degree of recovery, if any. The Board tends to reject the views of Applicant and Staff as overly optimistic, since they appear to underrate such root causes as inflation and the rapid rise in the cost of energy of all kinds. Neither of these factors is likely to be cyclical or temporary in our view. On the other hand, we are not as pessimistic as the Intervenor. Be that as it may, we find it unnecessary for our purposes here to judge the outcome with precision.[61] Rather, we believe the more important question to be: "What

[58] Riley, Note 46, *supra,* Exh. 6A at pages 24 and 25.

[59] See, for example, Riley *ibid.* at pp. 26-27.

[60] See Cleary, Note 39, *supra,* at pp. 7-8, and Tr. 3663-4.

[61] See paragraphs 23a, b and d of *Appendix A* hereto.

assumption regarding the relation between need-for-power and economic recovery is the most valid one to make in the public interest?" Although we find that the estimates of acknowledged experts in both the private and government sectors on this matter have often proved unreliable in the past, and still tend to conflict, we adopt the assumption that: (a) the recession will bottom out late in 1975 or early 1976, but (b) recovery will be slow for two or three years thereafter, and (c) postrecovery growth rates of power demand will be lower than those experienced in the prerecession decade.

Reserve Capacity

123. Intervenor has urged that the entire approach to capacity must be reconsidered. Intervenor bases this contention on several factors. First, growth in peak demand has been increasing in respect to total electrical energy usage, which results in the unfortunate circumstance that an increasingly large proportion of Applicant's capacity is underutilized. Second, Applicant is forced to build to meet increasing peak demand at a time when construction costs are rising rapidly. These rising costs necessitate increased rates; increased rates depress sales. Applicant thus finds itself faced with the need to provide new generating capacity and the fact that providing such capacity will further depress its sales. In these circumstances, Intervenor maintains that building to meet increased peak power demand is inappropriate and that other means should be found where necessary to meet reserve requirements.

124. The Board is also mindful of the fact that at the time peak demand reaches 11,000–12,000 MW, growth will likely be at the rate of 700–1000 MW per year, so that a sharp reduction in planned reserve could also significantly alter the year of need. We note also that Applicant's own reserve will nearly disappear by 1981 if demand grows as DPC forecasts. (See par. 106, above.) Applicant does not consider this situation in any way desirable, but states that it has no alternative.[62] It is common knowledge that financial problems have also delayed construction by many other utilities so that reserves much lower than thought desirable in the past have or will become a reality. Considering the problems and costs involved in providing reserves, and realizing that survival with lower reserves will be necessary in many cases, one may well ask whether circumstances have so changed as to make it desirable now to deliberately lower the reserve criteria previously considered essential. For these reasons, the Board decided to reconsider its previous findings that a reserve of 3,000 MW constituted a minimum essential, and that 4,000 MW was highly desirable. (See par. 61, Partial Initial Decision of April 9, 1974.) After careful deliberation, we conclude that the situation has not so changed as to require revision of our previous judgment.

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[62] See Beyer, Note 34, *supra*, at p. 4.

125. First of all, we note as before that were it not for interconnection between utilities, reserves would need to be higher still. Sizable voluntary reductions in reserves by all utilities would therefore negate that benefit. We have already expressed our opinion (in paragraph 119, above) that voluntary load leveling schemes are unlikely to be very successful and that they do not, therefore, represent an adequate alternative to reserve generating capacity.

126. We have also reconsidered Intervenor's proposal that the purposes of reserve capacity could be better met through purchase of bulk power from other utilities. Intervenor again offered no evidence aimed at providing assurance that bulk power will indeed be available during periods of peak demand coupled with the unexpected shutdown of Applicant's plants. CESG did state its understanding, however, that the TVA currently has surplus generating capacity in summer and that direct, high voltage lines owned by the Applicant exist, making possible the transfer of power to the DPC system. Acknowledging the difficulty it had in providing competent testimony to this effect, CESG invited the Board to investigate this possibility on its own initiative. In view of the testimony of Mr. Beyer under cross-examination, which refuted Intervenor's information and gave other reasons as to the impracticability of purchase as a substitute for reserve capacity (Tr. 3739-3744), the Board has not pursued the TVA matter further and has not altered its previously expressed opinion that DPC must meet its reserve requirements with its own generating capacity (paragraphs 57 and 58, Environmental PID, *supra*).

127. We again note that a very large fraction of Applicant's total generating capacity is tied up in a few large plants of about 900–1200 MW each. Hence, the unexpected outage of two or more plants, coupled with shutdown of others for periodic maintenance, could wipe out reserves entirely and could make forced denial of demand necessary. While we continue to believe that customers would not seriously object to minor, temporary shortages (par. 60 of Environmental PID, *supra*), we are in no way motivated to encourage risking shortages of such magnitude as to force substantial curtailment of the operations of Applicant's commercial and industrial customers.

Customer Reaction to Price Increases

128. Throughout the reopened hearings on need for power, Intervenor's main argument has been that Applicant's customers will react so negatively to increases in the price of electricity as to eliminate the need for new generating capacity. Using DPC price and sales data, Intervenor has derived values which it claims represent negative price elasticity for industrial usage.[63] CESG also cites

[63] See Riley, Note 46, *supra*, at 6A, p. 12. Throughout this decision and its Appendix, the term price elasticity is used to mean the change in usage of electrical energy per unit change in the price of electricity, i.e., the slope of the curve of usage vs. price.

the results of studies by others which also derived values for price elasticity. Furthermore, Intervenor has presented its own analysis projecting the rate it claims Applicant will have to charge to support its operations and its construction program. Coupling these two (increasing rates and negative price elasticity) Intervenor's witness Riley states, without presenting the supporting quantitative analysis, that CESG has now abandoned its earlier forecasts (par. 112, above) on the grounds that they "did not take into account the recent substantial increases in rate, particularly those brought about by the fuel clause adjustment." Riley then states that "when these are taken into consideration a reasonable guess is a peak below 8500 MW and probable subsequent decline as customers provide themselves with alternate energy sources."[64]

129. Staff's witness Cleary reported that FEA had derived and used a price elasticity of −0.42 in its Project Independence Report, but that its authors had expressed reservations as to the reliability of that value.[65] Applicant, on the other hand, steadfastly expressed the belief that price elasticity was either nonexistent, or at best, unestablished or insignificant.[66]

130. On the basis of the evidence before it, and the most rudimentary concepts of free trade, the Board has no doubt that negative consumer response is partly responsible for the drop in sales and peak power demand recently experienced by the Applicant.[67] On the other hand, we share the reservation expressed in the Project Independence Report as to its numerical value. For example, we reject the numerical values derived by Intervenor as much too high, in that they reflect the effects of economic recession (layoffs and curtailed production) as well as price-motivated conservation. The Board doubts, in fact, that the slope of the electrical usage vs. price curve is constant at all. Rather, it seems more probable to us that the slope would at first become more and more negative as price increases. Beyond some point, however, the trend would necessarily reverse, since there is a limit as to how much reduction in usage can be achieved without a serious disruption of society as we know it.[68] This results

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[64] See Riley, Note 46, at p. 15, and Tr. 4359, 4504.

[65] See Cleary, Note 39, *supra.*

[66] The attitude of the Applicant regarding price elasticity is well displayed in Applicant's Supplemental Proposed Findings of Fact and Conclusions of Law in the Form of a Proposed Initial Decision, March 28, 1975, at paragraphs 21, 23 and 24. See also Tr. 3679 and 3680.

[67] The Board notes that the energy legislation sponsored by the President and under consideration by the Congress relies, in many instances, on increased prices to depress consumer usage.

[68] If the price of electricity ever does reach that point, and we do not interpret the evidence as indicating that such an eventuality is probable in the next decade or two, one way out would be to convert to other forms of energy as Intervenor suggests (Exh. 6A at page 15), *provided* that other forms of energy are available and cheaper. However, the whole weight of evidence in this proceeding indicates that the opposite trend is the more likely.

from the fact that existing industrial production processes, offices, schools, stores and residences were constructed during an era of abundant and cheap electrical energy and were designed so as to require large amounts of electricity in order to function.[69]

131. The Board commends Intervenor for performing the analysis leading to an estimate of the increase in rates necessary to support Applicant's construction program (14% if peak demand reaches 15,575 MW, as Applicant now predicts, and 41% over present rates if demand reaches 11,100 MW, as Intervenor previously predicted).[70] However, we cannot derive the same significance from the results as Intervenor apparently does, i.e., that the increase in rates will drive down consumption to the point where new generating capacity is no longer required. For one thing, the anticipated costs used in the derivation of required revenue and thus rate increases include, for the most part, sizable provisions for inflation.[71] Thus, the majority of the required rate increases calculated by CESG must be ascribed to inflation, i.e., they do not represent real (constant dollar) increases, and therefore would not be expected to have nearly as much effect on sales as Intervenor assumes. Secondly, and more significantly, CESG has assumed that Applicant will pursue its currently planned construction program on schedule (including completion of the McGuire, Catawba, Perkins and Cherokee plants) no matter how far sales and revenue fall short of Applicant's present forecasts. The Board finds this assumption to be entirely unrealistic. (Tr. 4038-39)

132. The Board finds, therefore, that CESG's current guess that peak power demand will reach a maximum somewhere between 8,000 and 9,000 MW and then begin to decline is in serious conflict with the evidence in these proceedings and with the realities of the situation.

The Board's Overall Views and Findings

133. The need for the Board to consider the issue of whether or not the proposed Catawba Nuclear Station will indeed be required stems from the statutory requirements of NEPA that the benefits to be derived from the proposed action must be balanced against the environmental costs entailed and

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[69] From the expression "except for boxed-in structures" found at page 6 of Intervenor's Exhibit 6A, it is clear to us that CESG understands that there are definite limits to conservation. However, the Board believes that CESG either fails to recognize or declines to admit the extent to which the socioeconomic structure of this country is "boxed-in."

[70] See Riley, Note 46, *supra*, at p. 22.

[71] For example, the projected cost of fuel, operations and new construction all contain provisions for inflation. Additional borrowings to cover inflated costs result in higher debt service. Dividends are assumed to be proportional to earnings which are also increased by inflation. (Tr. 3550, 4090, 4123, 4233, 4234, 4241, 4283)

that the proposed action constitutes the best alternative available.[72] These matters have been weighed at great length in these proceedings. It is the Board's considered opinion that neither the costs nor the benefits are significantly altered by the precise period in which construction occurs. The issue, as we see it, is thus not the year of need, *per se*, but whether the plant will be needed at all, or at least in the first half of the 1980's.

134. One difficulty the Board faces in answering this question is that none of the parties has provided an analysis which extended to the point of demonstrating the probable quantitative effect on sales or demand resulting from any of the many factors debated. Nevertheless, and especially in view of the fact that growth rates somewhat less than half of those previously experienced suffice to meet the NEPA requirement as we interpret it above, it is the Board's judgment that new generating capacity will indeed be required during the first half of the 1980's and that the Applicant must furnish it. We have gone further on our own initiative, however, and have completed our own analysis based on the record, which is included as *Appendix A* hereto. Said Appendix is to be considered as a part of this decision.

135. In this analysis, we first developed a model which tracks past growth separately for each customer category (residential, industrial, commercial and other regular customers) and for growth in number of customers, as well as average usage per customer in each category. For 1974 and years following, the model was expanded to include other factors considered significant and used to forecast what we judge to be a reasonable lower bracket to future energy usage and power demand. Finally, the sensitivity of the final result to key assumptions was explored. The result of the lower bracket case studied is that Catawba will most probably be required before the summer peak of 1981 and almost certainly within the next two years thereafter.

136. Moreover, the Board has again considered the consequences of a wrong decision in this matter. We conclude, as before, that the consequences of proceeding and finding that demand does not develop as forecast are less damaging than delaying and finding that demand outpaces capacity.[73] We also note that proceeding with construction would be entirely commensurate with the President's objective of reducing excessive dependence on imported oil.[73a]

137. In summary, the Board finds that the benefits of the proposed action far outweigh the costs involved and that the proposed action is the best available alternative.

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[72] The Board is also aware that, if growth in the sale of electricity does not materialize as expected, the shortfall in revenues may also affect Applicant's financial qualifications.

[73] See par. 116 of the Environmental PID, *supra*.

[73a] In this respect, the Board estimates that the generating capacity of Catawba would suffice to heat approximately 650,000 of the 780,000 homes in the DPC service area which are now heated with natural gas and oil.

FINANCIAL QUALIFICATIONS

138. Applicant is a public utility primarily engaged in the production, transmission and sale of electric energy in the central portion of North Carolina and the western portion of South Carolina, comprising the area in those states known as the "Piedmont Carolinas". Applicant's service territory covers approximately 20,000 square miles and contains an estimated population of about 3,300,000.[74]

139. In excess of one million customers are served by Applicant, which is the principal supplier of electric energy in 44 of 56 counties located in its service territory. Applicant supplies electric service directly to retail customers in 216 cities, towns and unincorporated communities within its service area. Applicant also sells power at wholesale to 40 other incorporated municipalities and to a number of Rural Electrification Administration cooperatives and private utilities.[75]

140. Prior to the reopened evidentiary hearing in this proceeding, the undisputed evidence in this case was contained in the Staff's Safety Evaluation Report (SER),[76] which concluded that the Applicant was financially qualified to design and construct the Catawba facility. As a result of its examination of the record at the time of the April 1974 hearing, the Board found no reason to disagree with the Staff's evaluation in the SER.

141. At the reopened hearing, a substantial additional record was generated including supplementary testimony by the Applicant and Staff, testimony by the Intervenor, and extensive cross-examination. The Applicant provided updated financial data on its current and projected operations, including the construction program as now scheduled. The Applicant's witness contended that, despite fiscal stringencies associated with the current recession, Duke Power Company has been able to take appropriate steps to cope with its recent problems, is financially sound, and will be able to obtain the funds needed for construction of the Catawba reactors. The Staff witness provided an independent analysis of the Applicant's financial situation and future prospects that supported the Applicant's contention. The Intervenor, on the other hand, contended that Duke Power Company will be unable to obtain the capital necessary for construction of Catawba for a variety of reasons, including saturation of demand, negative price elasticity, reduced demand due to conservation efforts by the public, and failure to secure adequate rate relief from the regulatory commissions.

142. Based on the weight of the evidence in the entire record, the Board finds the Applicant to be financially qualified to design and construct the

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[74] Applicant's Exhibit 1—License Application, p. 2.

[75] Applicant's Exhibit 1—License Application, p. 2.

[76] Staff's Exhibit 3, pp. 20-1 to 20-5.

Catawba facility. The Board has been led to this conclusion by an analysis of a number of pertinent factors that will be discussed in the paragraphs that follow.

Construction Costs

143. In its original application to construct the proposed Catawba facility, Applicant estimated the total capital costs of construction (excluding transmission costs and nuclear inventory) to be $665.6 million. The cost estimate, due to changes in design requirements, a longer construction period, and the rapidly escalating costs of materials and equipment experienced in the latter part of 1973 and during 1974, is now $1,083 million.[77]

144. The estimated cost of the Catawba units was reviewed by the Staff by comparing it to costs estimated by the Staff's Concept Costing Model. That model currently uses construction inflation or escalation rates of 10% per year for site labor and materials and 5% per year for purchased equipment. The Concept Costing Model estimated the cost of the Catawba units to be $1,109 million, which is in good agreement with Applicant's estimate.[78]

145. Applicant periodically makes a financial forecast estimating its capital requirements and its sources of capital. Applicant's financial forecast, dated February 12, 1975,[79] updates the September 18, 1974, financial forecast upon which the above-mentioned Staff testimony was based. (See Tr. 3389-92) In addition, the February 12, 1975, financial forecast extends the forecast of capital requirements and sources of capital through 1981 to cover the entire period resulting from the Applicant's extended construction period.

146. It should be noted that this financial forecast deals with the entire Duke Power Company construction and financing program, including the Perkins and Cherokee facilities, which Applicant presently proposes to construct beginning in the near future, and for which applications are now pending before the Commission. The Board is charged only with reaching a finding in relation to construction of the Catawba facility. Evaluation of financial capability to construct the Perkins and Cherokee facilities, involving a total of six additional power reactors, is the responsibility of a separate licensing board. This Board must, however, include in its evaluation the costs of completing projects already under way (Jocassee, Belew's Creek and McGuire)[80] and a small portion of the proposed Perkins and Cherokee expenditures that may reasonably be expended prior to the possible granting of construction permits for these proposed projects. This important distinction is discussed in more detail in *Appendix B,*

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[77] Written testimony of Applicant Witness Ashmore, following Tr. 3209, at p. 3.

[78] Written testimony of Staff Witness Jackson, following Tr. 3411, at p. 2.

[79] See Ashmore, note 77, *supra,* Attachment A.

[80] These projects are described in Applicant's License Application Section II, and in Applicant's Financial Reports for 1973 and 1974 which were submitted for the record.

hereto, which constitutes the Board's analysis of the questions of financial qualifications, and is to be considered a part of this decision.

Capability to Generate and Raise Funds

147. The Staff, in assessing Applicant's capability to generate and raise funds, listed several factors as important to Applicant's ability to carry on its capital expenditures program, including construction of Catawba. The Staff list was as follows:

1. Regulatory decisions including, but not limited to, allowed return on equity, fuel adjustments and earned return on equity.
2. Earnings coverage of bond interest and preferred dividends.
3. Bond and stock ratings of Moody's and Standard and Poor's.
4. Internal cash generation and allowance for funds used during construction.

The Board considers that an analysis of these factors serves as a proper basis for assessing Applicant's ability to generate and raise funds, and they will be discussed below.

Rate Relief

148. With respect to regulatory decisions, the ability of Applicant to generate internal funds and to raise external capital funds in order to finance its construction program depends to a great extent upon satisfactory rate relief from the Public Utilities Commissions of North and South Carolina.[81] Satisfactory rate relief means that the Applicant will be allowed to earn a reasonable return on invested capital, that is, a return which is sufficient to maintain its credit and to attract the funds required to construct generating facilities.[82]

149. For the years 1973 and 1974, the following favorable actions in connection with requested rate increases by Applicant have been taken by these two Commissions.[83]

Effective Date	Commission	Per Year Increase in Income
9/15/73	North Carolina	$21,150,000
9/15/73	South Carolina	$11,535,000
1/19/74	North Carolina	Coal adjustment clause allowed
1/19/74	South Carolina	Coal adjustment clause allowed subject to refund
10/10/74	North Carolina	$61,080,000
11/1/74	North Carolina	Final fuel adjustment clause (including coal) allowed
12/1/74	South Carolina	$26,446,000

[81] Tr. 3213, 3216.

[82] Written testimony of Jackson at p. 4, note 78, *supra.*

[83] *Ibid.*, Attachment 4.

In addition, on April 26, 1973, the Federal Power Commission granted Applicant a rate increase, subject to refund, of $8,874,000 and on August 23, 1972, a fuel adjustment allowance (pending a Commission decision).[84]

150. Attention was focused during the reopened hearing on two orders by the North Carolina Public Utilities Commission. One reduced for a 60-day period the amount of the fuel adjustment clause billed to North Carolina residential customers by 25%.[85] The evidence shows that this fuel adjustment rollback will cost Applicant $2.2 million which will be translated into a one-cent reduction in earnings per share in both 1974 and 1975.[86] Since the earnings per share of common stock in 1974 amounted to $1.80 per share (DPC annual report for 1974), the impact of the reduction in the fuel adjustment clause is small. The other postponed for an indefinite period a hearing on the Applicant's request for an interim rate increase of 19.7%.[87] This interim rate increase request was part of Applicant's total request, filed with the Commission on November 29, 1974, for a 23.6% rate increase.[88] The testimony indicates that the Commission postponed Applicant's request because of the need by the Commission's Staff for additional time to consider the rate increase request. The earliest date that Duke can put the rate increase into effect is July 1, 1975.[89]

151. The Board is not persuaded that these two recent actions by the North Carolina Public Utilities Commission are sufficient evidence to demonstrate that the Applicant will not be able to obtain satisfactory rate relief in the future.

Earnings Coverage

152. Another factor affecting Applicant's ability to raise external capital is the amount of coverage of its earnings over the amount of its interest payments for bonds and dividends on preferred stock. Coverage is a measure of protection for these payments and is given great weight by rating agencies in determining bond and stock ratings. Applicant's mortgage bond indenture requires a minimum earnings coverage of 2.0 and restricts selling of additional mortgage capital if the coverage falls below that figure. Applicant's earnings coverage for the 12 months ending October 31, 1974, was 2.80.[90] Projected earnings coverages as determined by the Securities and Exchange Commission method for the period 1975 to 1981 vary from 2.80 to 3.20.[91]

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[84] *Ibid.*, Attachment 4.
[85] Written testimony of Ashmore at p. 6, note 77, *supra.*
[86] Cross-examination of Ashmore at Tr. 3226, 3393.
[87] *Ibid.*, at Tr. 3222.
[88] Written testimony of Ashmore at p. 6, note 77, *supra.*
[89] Cross-examination of Ashmore, at Tr. 3222.
[90] Written testimony of Jackson at p. 9, note 78, *supra.*
[91] *Ibid.*, at p. 10.

153. The Intervenor contends that revenues will be far less than projected by DPC and that the predicted ratios quoted above are unfounded. The Board recognizes that predicted earnings are indeed crucial to an evaluation of future financial status. As noted above, it is necessary to separate the effect on these ratios of Catawba from a major portion of that due to the proposed Perkins and Cherokee reactors. However, the Board is of the opinion that purely inflationary factors, since they constitute parallel effects on costs and personal incomes, have little, if any, effect on the use of electric power by the mechanism of price elasticity. The Board does not consider that increases in real costs of electricity and other factors will have sufficient effect on earnings to support the Intervenor's contention.

Bond and Stock Ratings

154. Applicant's bonds are rated "A" by both Standard and Poor's and Moody's, while the common stock is rated "A–" by Standard and Poor's. These are agencies providing ratings of the quality of corporate securities.[92] Future ratings will depend strongly on the adequacy of rate relief and on earnings coverage which have been discussed in the two preceding sections. It is reasonable to believe that the ratings may be maintained at this level over the near-term future because of the rate relief which the appropriate rate Commissions have been granting the Applicant.

Internal Cash Generation and Allowance for Funds During Construction

155. The generation of adequate internal cash by Applicant is necessary to provide part of the construction funds needed and also to attract outside capital. In 1973 and 1974, because of reduced earnings, Applicant's internal cash represented only about 20% of its capital requirements, which is less than the 1/3 to 1/2 ratio which utilities have historically maintained. This reduction of internal cash was due to a number of factors, including rising capital and operating costs which were not adequately offset by rate increases, and higher fuel costs which were not immediately passed on to the Applicant's customers.[93] Because of the granting of rate increases and fuel adjustment clauses, the Applicant's internal cash position has now returned to a more normal status.[94]

156. There was considerable testimony on cross-examination as to how Applicant's internal cash position could jump from $96.7 million in 1974 to a projected $321.9 million in 1975.[95] Approximately $225 million will come

[92] See Jackson, *supra*, note 78, at pp. 10-11.

[93] See Jackson, *supra*, note 78, at p. 11.

[94] *Ibid.*, at p. 12.

[95] See Jackson, *supra*, Attachment 3; and Written Testimony of Ashmore, *supra*, note 77, Attachment A.

from depreciation accruals of $108 million, amortization of nuclear fuel of $27 million, deferred taxes of $52 million, and retained earnings and miscellaneous items of $38 million. The remaining $97 million of this difference is expected to be generated by the sale and leaseback of certain of Applicant's assets. This amount represents approximately 2.8% of Applicant's total assets and includes buildings, warehouses, nuclear fuel, construction equipment, and yellowcake. There are tax advantages to the sale leaseback procedure and, indeed, such an arrangement may be the cheapest way to generate funds. This method has been used by other utilities, and its use by DPC will not necessarily increase Applicant's costs in the future.[96]

157. Allowance for funds used during construction ("AFDC") is an accounting allowance which represents the "cost of capital" of funds used during construction. It does not generate cash, and therefore it is not a source of real funds. As construction programs level off or are reduced, and as plants under construction go into operation and are included in the rate base, AFDC drops, and actual earnings, which generate cash, replace the AFDC.

158. For the year ending September 30, 1974, the Applicant earned $105.5 million before preferred dividends, compared with $96.7 million for the comparable period a year earlier. During both periods, approximately 60% was from AFDC. This represents a leveling out of AFDC.[97] Projected values of AFDC rise from a level of $60 million in 1975 to $136.5 million in 1981. It should be noted that these projections include the effect of the proposed construction of the Perkins and Cherokee Plants.

Board's Overall Views on Financial Qualifications

159. As previously mentioned, one of the difficulties the Board faces in evaluating Applicant's financial qualifications is that Applicant presented its case in terms of its total planned construction program, including two large plants following Catawba. Moreover, both Applicant and Staff evaluated DPC's ability to finance that program assuming that sales of electricity, and thus revenues, would be as high as Applicant now predicts. And yet, whether or not DPC will indeed be able to finance its construction program as currently proposed and scheduled depends almost entirely on whether or not revenues meet expectations. Due to the current economic recession, it appears to the Board that there is a high probability that revenues will fall short of expectation for at least a year or two. Internally generated cash from revenues available for construction may, therefore, be sizably reduced. If so, Applicant's ability to raise construction capital externally will also be significantly reduced,[98] unless additional cash can

[96] Cross-examination of Ashmore at Tr. 3324-51.

[97] See Jackson, *supra*, note 78 at p. 12.

[98] Applicant has testified that a shortfall of 47 million dollars (or about 6% of expected total revenues from sale of electricity for a 12-month period) would prevent it from issuing additional first-mortgage bonds. (Cross-examination of Ashmore at Tr. 3384-89).

be generated (by further sales and/or sales and leasebacks, for example). Consequently, the currently planned construction program may have to be stretched out. If so, the Board would assume that the completion of generating plants now under construction would have priority over Catawba, but that Catawba would have priority over the two larger follow-on plants (Perkins and Cherokee). Should sales continue to fall short of expectations on into the future, and the Board believes that Applicant's forecasts are on the high side, further adjustments in the planned construction program will be required, e.g., construction of Catawba may have to be stretched out somewhat and follow-on plants either delayed still further or cancelled altogether as the situation warrants.

160. In this respect, it is important to note that remaining expenses for plants currently under construction are considerably less than the predicted cost of Catawba. Moreover, the cost of Catawba is less than 20% of the total cost of the three new plants presently planned. The Board finds that Applicant has demonstrated its ability and willingness to make adjustments as required and that it continues to have ample flexibility available to it should shortfalls in revenue eventuate, as the Board considers likely. As stated under the section on need for power, however, and as substantiated by the analysis in the Appendices hereto, the Board does not believe that shortfalls in sales and revenues are likely to be so great as to interfere substantially with plans either for the construction of generating plants currently under construction or for the Catawba Nuclear Station.

161. The Board could be wrong in either direction, of course. If sales and revenues do meet or exceed the levels Applicant anticipates, any question of financial qualification disappears. Should sales and revenues fall somewhat short of the Board's lower bracket estimate, Catawba may well have to be stretched out until 1982 or 1983. If so, it will cost more due to inflation, but there will be no shortage of power. Should sales fall substantially short of the lower bracket estimate, Catawba may have to be cancelled. However, the Board considers that eventuality to be so improbable that it does not constitute a bar to the granting of a construction permit on the grounds of need for power or financial qualifications.

Board Findings on Financial Qualifications

162. The Board's findings, based on a consideration of the entire record and its own evaluation of the record as described above and in *Appendix B*, are as follows:

(a) At the time of the April 1974 hearings, the Intervenor had no contention challenging the financial qualifications of the Applicant, and the Board found no reason to doubt the Staff's conclusion that the DPC was financially qualified to construct the Catawba facility.

(b) The record was reopened on the subject of financial qualifications because of economic and financial developments during the summer and fall of 1974. All three parties presented extensive testimony at the February 1975 hearings.

(c) The estimates of construction costs made independently by Applicant and Staff were in close agreement and were not challenged by the Intervenor.

(d) This Board is responsible only for evaluating financial qualifications of DPC to construct the Catawba facility and not for its qualifications to construct future projects such as Perkins and Cherokee, for which construction permits have not been obtained and which are the province of another Atomic Safety and Licensing Board.

(e) The Board, having considered the various factors determining DPC's capabilities to generate and raise funds, concludes that there is a high probability that DPC will be able to finance construction of Catawba. The Board makes no finding with respect to Perkins and Cherokee.

IV. MISCELLANEOUS MATTERS

Applicant's Renewal of Petition for Waiver or Exception Pursuant to 10 CFR Section 2.758

163. Applicant, under date of May 13, 1975, has, as indicated in a separate Order being issued by the Board simultaneously with this Decision, filed a renewal of its earlier petition seeking a waiver of 10 CFR 50.46(a)(3), which requires that for construction permits issued after December 28, 1974, compliance with the Final Acceptance Criteria for ECCS, in Section 50.46, must be shown.[99] At the same time, the Applicant filed directly with the Commission a request for exemption,, pursuant to 10 CFR Section 50.12(a), from having to comply with the Final Acceptance Criteria set forth in 10 CFR 50.46.

164. It is apparent that without a finding of compliance with Appendix K, no construction permit can be issued. And, as the record of this proceeding now stands, Applicant has not yet demonstrated compliance with the Final Acceptance Criteria, although, as concluded by the Board in its Supplemental Partial Initial Decision of December 19, 1974, on ECCS matters, the Applicant has met the Interim Acceptance Criteria. In the circumstances of the pendency of the above-described Applicant's petitions for waiver and/or exemption, and in view of the findings of the Board herein that, in all other respects, the issues in the Notice of Hearing in this proceeding are to be concluded in Applicant's favor, the Board is of the opinion that it should issue its Initial Decision at this time on a conditional basis. That is, but for the matter of compliance with 10 CFR Section 50.46, the Board would in this Decision authorize the Director of

[99] See ECCS SPID, *supra*, for a further explanation of the background circumstances.

Nuclear Reactor Regulation to issue construction permits upon the stated conditions.

165. With respect to the matter of compliance with 10 CFR Section 50.46, the Board finds, in the above-mentioned separate Order on Applicant's Petition for Waiver, that Applicant has made a *prima facie* showing of the existence of special circumstances sufficient to warrant the Petition being certified to the Commission, pursuant to 10 CFR Section 2.758(d). Accordingly, the Board believes that, in the unique circumstances existing here, it is appropriate to proceed in the manner indicated, i.e., issue an Initial Decision conditioned upon favorable action by the Commission on the Petition for Waiver or the Request for Exemption, said Decision being subject to review in accordance with the Commission's Regulations.

Intervenor's Request for Official Notice

166. As part of Intervenor's "Proposed Findings of Fact, Conclusion of Law and Order," filed April 9, 1975, it requests (at pp. 28-31) that the Board officially notice two documents designated "A Note for L. Manning Muntzing" dated September 27, 1974, from Edwin G. Triner, Director, Office of Program Analysis—Regulation, and a note to Mr. Triner under same date from Frank D. Haines, Special Assistant, Office of Program Analysis—Regulation. Intervenor's request was opposed in pleadings filed by the Applicant on April 21 and by the Staff on April 22, 1975.

167. Intervenor's request is denied on the grounds that the materials in question are not the proper subject for official notice under the governing provisions of 10 CFR 2.743(i), and also for the reasons set forth in the opposition pleadings of the Applicant and the Staff.

Intervenor's Supplemental Testimony on Financial Qualifications

168. At the close of the reopened hearing in this proceeding on February 28, 1975, the Board granted the Intervenor until March 7, 1975, within which to file supplemental data on the issue of Applicant's Financial Qualification. These data were to be supplied by Intervenor in response to questions propounded by Applicant on cross-examination of Intervenor's witness, Jesse L. Riley. (Tr. 4535) In addition, Intervenor was directed by the Board to set forth a "justification" showing how the data would be decisionally significant in light of the record already made in this proceeding. Applicant and the Staff were granted until March 14, 1975, within which to submit any comments they might have with respect to Intervenor's filing.[100] Intervenor has timely filed a document captioned "Intervenor's Supplemental Testimony After February 1974 (sic) Hearing."

[100] Applicant and Staff's right of cross-examination was also preserved by the Board. (Tr. 4536)

169. Applicant filed a Response on March 14, 1975, attempting to refute, point-by-point, Intervenor's supplemental testimony and requesting, in the alternative, either that the testimony be stricken or that it be accorded no weight by the Board. The Staff filed its Response on March 14, indicating that it would comment on the weight to be given this testimony when it filed its Proposed Findings, and stating, further, that Intervenor had not shown any "justification" of decisional significance for its supplemental testimony.

170. The Board has accepted Intervenor's Supplemental Testimony and, as indicated in this Decision and its Appendices, has accorded it such weight as appeared appropriate for the discussion of the issues involved.

Federal Water Pollution Control Act (FWPCA)

171. Applicant's Exhibit 5 (at Tr. 513) is a certification from the State of South Carolina (State) issued, pursuant to Section 401(a) of the FWPCA, on January 9, 1974. This certification states that there are no applicable limitations or other limitations under Section 301(b) and 302 of the FWPCA, and there are no standards under Sections 306 and 307 of the FWPCA applicable to the action which Applicant proposes to conduct.[101] Subsequent to the earlier close of the environmental record in this proceeding, the Environmental Protection Agency (EPA) published, on October 8, 1974, "Steam Electric Power Generation Point Source Category Effluent Guidelines and Standards" (39 *Federal Register* 36186) which, among other things, establishes effluent limitations and standards of performance under Sections 301(b) and 306 of the FWPCA. The Staff made inquiry to the State concerning whether, in light of the promulgation of standards, limitations and guidelines by EPA, the State intended to take any additional certifying action regarding the proposed Catawba facilities. The State's reply was in the negative. (Applicant's Exhibits 13A and 13B at Tr. 4097-4103) Thus, no further action is required by this Board for the purposes of Section 401(a) of the FWPCA.

V. CONCLUSIONS OF LAW

172. The Board has considered all of the documentary evidence and oral testimony adduced in the entire record of this proceeding, concerning the issues and contentions which have been the subject of the hearings. The Board has also given consideration to the Supplemental Proposed Findings and Conclusions filed herein by the parties; to the extent they are accepted in whole or in part, such findings and conclusions are reflected by the Board's discussion and

[101] See the Board's earlier conclusions in its Environmental PID, *supra*, at paragraph 121..

findings set forth above; in all other respects, they are rejected as being unsupported in law or fact, or as not being supported by the weight of competent, relevant and material evidence in the record.

173. The Board has reviewed its previous Partial Initial Decisions herein, cited above,[102] in the light of the presentation of evidence on all issues in the entire record. The findings and conclusions set forth therein are, except as modified in this decision, hereby reaffirmed and incorporated herein by reference.

174. The application and the proceedings thereon comply with the requirements of the Act and the Commission's regulations.

175. Upon consideration of the entire record in this proceeding, and the findings of fact set forth above, the Board concludes that the application and record of this proceeding contain sufficient information, and the review of the application by the Staff has been adequate, to support the following findings:

A. In accordance with the provisions of 10 CFR Section 50.35(a):

(1) The Applicant has described the proposed design of the facility including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components incorporated therein for the protection of the health and safety of the public;

(2) Such further technical or design information as may be required to complete the safety analysis, and which can reasonably be left for later consideration, will be supplied in the final safety analysis report;

(3) Safety features or components, if any, which require research and development have been described by the Applicant, and the Applicant has identified, and there will be conducted, a research and development program reasonably designed to resolve any safety questions associated with such features or components; and

(4) On the basis of the foregoing, there is reasonable assurance that (i) such safety questions will be satisfactorily resolved at or before the latest date established for completion of construction of the proposed facility, and (ii) taking into consideration the site criteria contained in 10 CFR Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

B. The Applicant is technically qualified to design and construct the proposed facility.

C. The Applicant is financially qualified to design and construct the proposed facility.

D. The issuance of a permit for construction and operation of the facility, upon the conditions and in the circumstances noted below, will not be inimical to the common defense and security or to the health and safety of the public.

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[102] See note 1, *supra*.

E. The Board concludes, upon the entire record, that the requirements of Section 102(2)(C) and (D) of NEPA and Appendix D of 10 CFR Part 50 have been complied with in this proceeding; and that the Final Environmental Statement and the cost-benefit analysis in this proceeding, as modified by this decision, comply with the requirements of the aforesaid statutory provisions and Regulations.

F. The Board has determined, upon an independent consideration of the final balancing among conflicting factors contained in the entire record of this proceeding, and after weighing the environmental economic, technical and other benefits against environmental costs and considering available alternatives, that the appropriate action ultimately to be taken is issuance by the Director of Nuclear Reactor Regulation of construction permits for the proposed plant, *CONDITIONED, HOWEVER,* upon prior favorable action by the Commission on Applicant's Petition for Waiver or Exception Pursuant to 10 CFR Section 2.758, dated May 13, 1975, or favorable action on Applicant's Request for Exemption from Compliance with 10 CFR Section 50.46. In the event such permits are ultimately issued, they should be appropriately conditioned, for the purpose of protecting the environment, as follows:

(1) The Applicant shall complete all necessary preconstruction surveys required by Section 6.1 of the FES prior to commencement of construction.

(2) The Applicant shall submit an adequate aquatic monitoring program, which will incorporate the Staff's recommendations, set out in Section 6.1.1 of the FES, relative to benthos, plankton and fish, to the Staff for approval prior to any construction that affects Lake Wylie.

(3) The Applicant shall schedule its dredging activities in a manner that will minimize the environmental impact to Lake Wylie.

(4) The Applicant shall take the necessary mitigating actions, including those summarized in Section 4.6 of the FES, during construction of the proposed units and associated transmission lines to avoid unnecessary adverse environmental impacts from construction activities. A program of control over all activities which can cause a significant adverse environmental impact shall be established by Applicant. The program shall provide for a periodic review by the Staff of all construction activities to assure that these activities conform to this condition and do not result in significant adverse environmental impacts.

VI. ORDER

176. Based on the Board's Findings and Conclusions, and pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's Regulations, IT IS ORDERED, that the Director of Nuclear Reactor Regulation is authorized, upon condition of favorable action by the Commission on Applicant's

aforementioned Petition for Waiver or its Request for Exemption from 10 CFR Section 50.46, to issue construction permits to Duke Power Company to construct the Catawba Nuclear Station, Units 1 and 2; and further conditioned as aforesaid to protect the environment. IT IS FURTHER ORDERED, in accordance with Sections 2.740(a), 2.762, 2.785 and 2.786 of the Commission's Rules of Practice, 10 CFR Part 2, that this Initial Decision shall constitute the final action of the Commission as to the matters covered therein forty-five (45) days after its issuance, subject to the review thereof under the above-cited rules. Pursuant to 10 CFR 2.762, exceptions to this Initial Decision must be filed within seven (7) days after service of this Decision, and a brief in support of the exceptions must be filed within fifteen (15) days thereafter (twenty days in the case of the Staff). Within fifteen (15) days of the filing and service of the brief of the appellant (twenty days in the case of the Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

THE ATOMIC SAFETY AND
LICENSING BOARD

Frederick P. Cowan, Member

Ralph S. Decker, Member

Max D. Paglin, Esq., Chairman

Dated at Bethesda, Maryland
this 30th day of June 1975.

Attachments: Appendix A: Board's Estimate of Lower Bracket to Future Peak Power Demand on Duke Power Company System
Appendix B: Board's Analysis of Applicant's Financial Qualifications
Appendix C: List of Exhibits Offered at Reopened Hearing

APPENDIX A

BOARD'S ESTIMATE OF LOWER BRACKET TO FUTURE PEAK POWER DEMAND ON DUKE POWER COMPANY SYSTEM

INTRODUCTION

1. Applicant has introduced written testimony presenting its forecast of peak power demand as revised on December 23, 1974[1].* Following an actual drop of about 2% in 1974, summer peak power demand is forecast to grow as follows:

Year	Peak Load, MW	Increase over Previous Year, %
1975	8,633	7.1
1976	9,712	12.6
1977	10,512	8.1
1978	11,341	7.9
1979	12,209	7.7
1980	13,119	7.5
1981	14,073	7.3
1982	15,074	7.1

Assuming the drop experienced in 1974 is due to the general economic recession, the oil embargo and its aftermath, and related conservation measures, this forecast implies a sizable step toward recovery in 1975, followed by a large increase in 1976.† In 1977 and years following, growth rates essentially follow prerecession trends. Staff testimony, based on independent analysis by the FEA, tends to support this analysis.[2] Moreover, Staff also sees the current recession as a temporary, cyclical phenomenon and expects rapid recovery to former growth patterns.

2. Intervenor, on the other hand, advanced arguments to the effect that recovery from the recession would begin later, and that future growth rates would be much lower, due primarily to price elasticity. In fact, Intervenor's witness Riley claims that Catawba will never be built since customer resistance to increasing prices for electricity will so diminish usage that it will be neither required nor financially possible.‡ Intervenor also claims that other factors such as the following will result in growth rates lower than simple extension of prerecession trends would infer:

*Superscripts refer to references listed on pages 694 and 695.

†If the current economic recession is indeed a temporary cyclical phenomenon, a sizable increase is to be expected following the dip, since its primary component represents a return to prerecession levels.

‡Supplemental testimony of Jesse Riley, Feb. 21, 1975, Intervenor's Exhibit 6E.

a. Permanent retention of at least a part of the savings achieved during the recession and the oil embargo.

b. The truism that growth cannot go on forever at constant compound growth rates.

c. The approach to saturation in installed equipment and appliances.

d. A reversal in the trend toward electric space and water heating.

e. The use of prerecession trends based on a time period which does not include the years 1972 and 1973.

3. It is important to note at this point that should future growth indeed follow the pattern forecast by the Applicant, its available reserve would almost disappear in 1981, and would become negative in 1982, unless additional generating capacity is provided early in 1981.[1] Applicant,[1] Staff,[2] the Federal Power Commission,[4] and the Board* all agree, however, that a reserve of 3000–4000 MW is required, especially when planning the timing of new capacity additions. To meet this requirement, Catawba would still be required in 1981 even if there were zero growth in 1975 and an average of only 6% per year thereafter. Similarly, a growth rate of 4.5% per year following no growth in 1975 would require new capacity in the Spring of 1983.†

4. With this in mind, and considering all the evidence before it, the Board could well have reached the judgment that no combination of factors advanced by Intervenor is likely to so delay or reduce postrecession growth as to negate the need for Catawba by 1983 at the latest. Such a judgment would necessarily have been almost entirely qualitative, however, since none of the parties offered quantitative analyses indicating the extent to which these factors might affect year-of-need. The Board has therefore undertaken to perform such an analysis on its own, based on data in the hearing record, as an aid in reaching its findings. It is the purpose of this appendix to record the methods, assumptions and results of that analysis.

General Approach

5. No one knows for sure just how deep the current recession may become, how long it will last, how rapid recovery may be, or to what extent the root causes may permanently influence future patterns. Yet we believe that these are key factors which will heavily influence peak power demand on the DPC system for the next 5 to 10 years. The Board claims no particular expertise in economic forecasting and notes, in passing, that the conflicting predictions of acknowledged experts provide little reliable guidance. Nevertheless, the long lead times required to construct new generating plants demand decisions now. In such situations, it is common practice to study both optimistic and pessimistic

*Paragraph 61 of this Board's PID, April 9, 1974.

†These rates compare with the prerecession rates slightly in excess of 10% per year.

scenarios which are thought to have a high probability of bracketing the true outcome. In this case, the Board has no reason to explore the upper bracket since Catawba cannot be brought on line before 1981 in any case.[1] To develop a lower bracket case, the Board assumes that the economic downturn will bottom out late in 1975 or early in 1976, and that while recovery will begin in 1976, it will require two or three more years to complete. Other factors such as high energy cost and approach to saturation will then limit growth to something less than that achieved in the prerecession years.

6. To develop a basic model, past usage is analyzed for each DPC customer category and class in terms of number of customers and usage per customer.* The only data employed are taken directly from the record.† In the recession and postrecession periods, the model is extended to permit treatment of additional factors including those listed in paragraph 2, above, and is used to forecast a lower bracket to future usage. The many judgments involved in this process are those of the Board, but do not go beyond matters argued by the parties on the record. The sensitivity of the lower bracket to important assumptions is then explored.

7. The method employed here does not avoid the necessity for "crystal-ball gazing". It does, however, provide for the identification of all the factors the Board believes to be important, and permits their likely effects to be estimated separately and quantitatively.

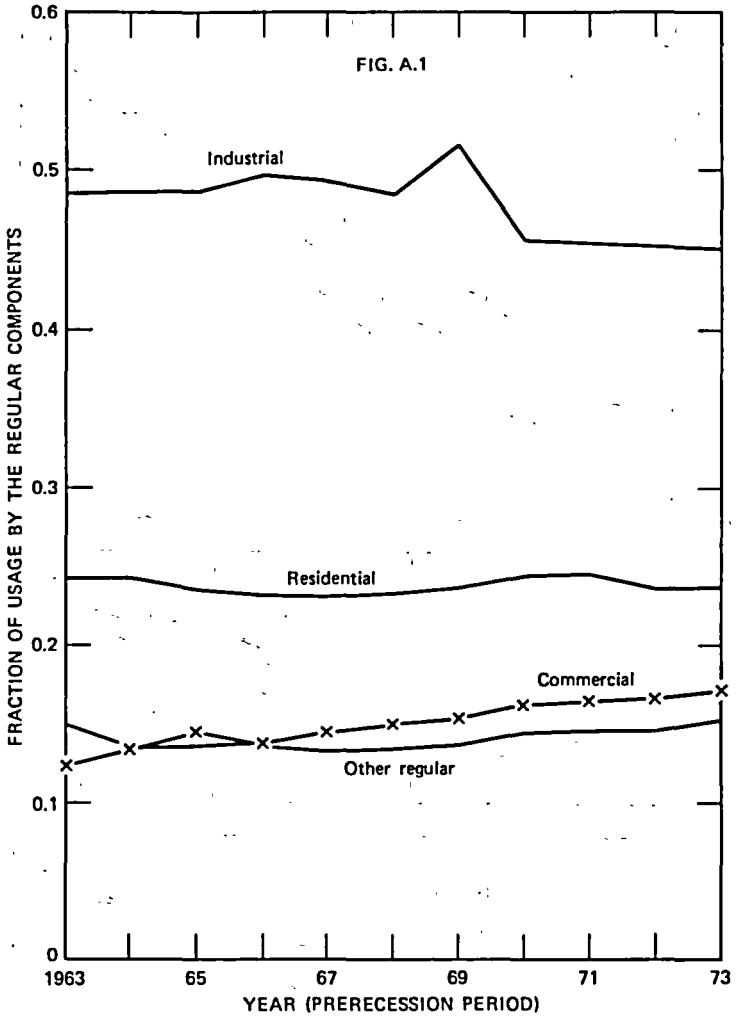
8. Users of electricity in the DPC service area are divided into five broad categories: residential, commercial, industrial, other regular customers, and special sales. During the prerecession period, special sales varied from 0.17% to 5.36% of total sales and averaged 1.89%. Since the Board has no way of forecasting special sales in the future, because the contribution to the total is small, and to stay on the conservative side,‡ special sales have been ignored after 1973. The contribution of each of the four regular customer categories is plotted in Figure A.1, where it may be seen that, except for a spike in industrial usage in 1969:

a. Industrial customers used about 45–49%.
b. Residential customers used about 23–25%.
c. Commercial customers used about 12–17%.
d. Other regular customers used about 13–15%.

*While it is peak power demand which determines capacity requirement and is therefore of ultimate interest, the detailed data available are almost entirely in terms of electrical energy usage. However, the ratio of peak power demand to total usage has been reasonably constant over the last decade. We therefore analyze past and forecast future usage and then convert to peak power using an average historical ratio.

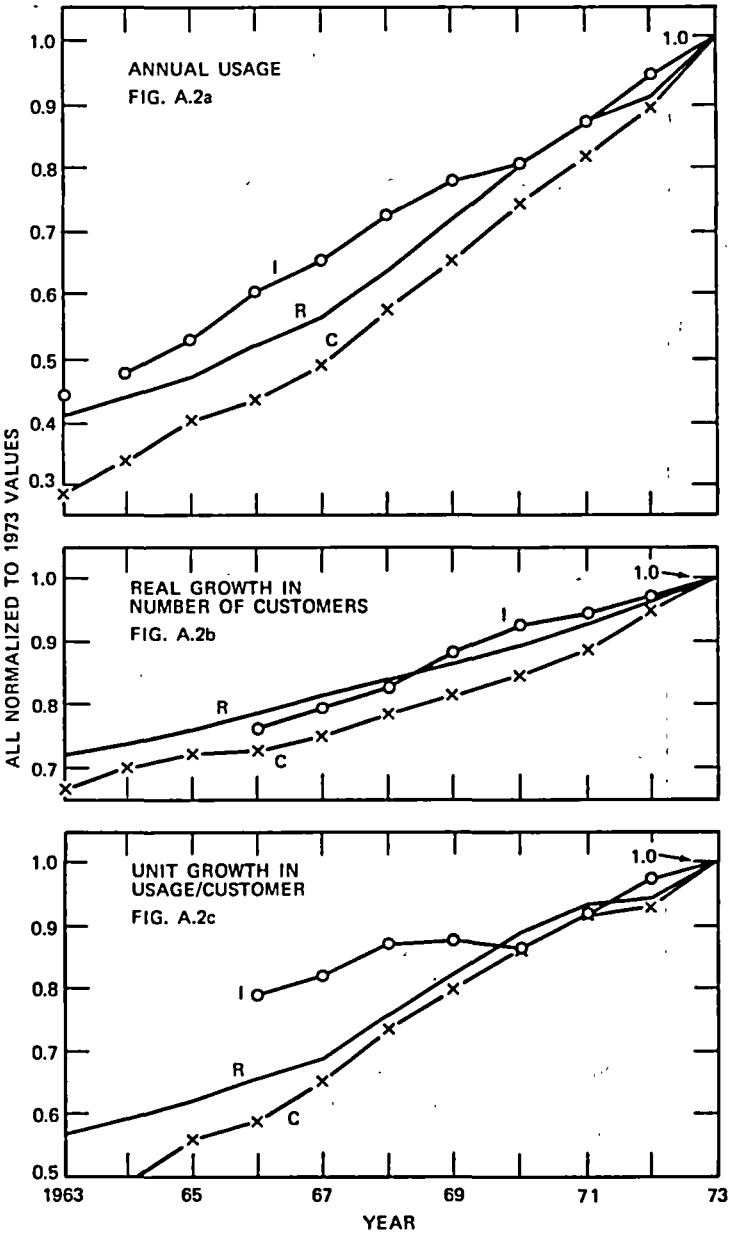
†In particular, see references 1, 2, 6, 7, and 8 on pages 694 and 695.

‡Although it can quite properly be used in the opposite sense, the word "conservative" always means toward lower usage and later year-of-need in this analysis.



9. The percentage contribution of Other Regular Customers was nearly constant throughout the period. For this reason, and since there is little or nothing else in the record on which to base future growth,* it will be assumed that Other Regular Customers always use a constant 15% of the total used by all regular customers.

*The Board understands that Other Regular Customers include municipalities and cooperatives to whom DPC sells bulk power for distribution and resale. Since the individual customers of municipalities and cooperatives would include residential, industrial and commercial, a nearly constant ratio in the past is not surprising and is appropriate for the future.



10. The electrical usage of each of the remaining three customer categories (I, R and C) can be further divided into growth in number of customers and growth in usage per customer. That these have both grown steadily and rapidly during the prerecession period may be seen in Figure A.2 (attached hereto)

(where all points have been divided by their value in 1973 to permit direct comparison). Total growth for the period and the equivalent annual compound growth rates are displayed in Table A.1, attached hereto.

TABLE A.1

	Overall Growth 1963 to 1973	Equivalent Compound Annual Growth Rate
Total Industrial Usage*	52.8%	6.2%
Number of Industrial Customers*	25.1%	3.3%
Usage per Industrial Customer*	22.1%	2.8%
Total Commercial Usage	242.0%	13.1%
Number of Commercial Customers	48.0%	4.0%
Usage per Commercial Customer	130.0%	8.7%
Total Residential Usage	144.0%	9.4%
Number of Residential Customers	38.0%	3.3%
Usage per Residential Customer	76.0%	5.7%
Total Other Usage	149.0%	9.6%
Number of Other Customers	149.0%	9.6%
Usage per Other Customer	0	0
Population	14.9%	1.4%

*Seven years only (1967 to 1973) since a large (factor of 3) change in number of industrial customers occurred between 1966 and 1967, indicating a revised means of customer classification.

Recession and Postrecession Periods (1974 to 1985)
Residential Customers

11. While essentially the same methodology will be used for residential, industrial and commercial categories for the recession and postrecession periods, residential usage is examined first since there are considerably more data in the record relating to this category. Among other things, the residential category is itself further divided into three classes:

R—Standard residential, without electrical water or space heating.

RW—residential with electrical water heating.

RA—all electric residential, including space heating.

From the evidence that the number of residential customers classified RA grew 8.3% over the 165,540 classified RA in 1973, it can be inferred that there were 13,740 new RA customers added in 1974. Since 58% of all new residential customers were classified RA in 1974, it may also be inferred that there were a total of 23,690 new residential customers in 1974, or a growth of 2.575% over

1973.* Total residential usage grew only 1.365%, however, so that usage per customer dropped 1.18%. This compares with positive growth rates in usage per customer ranging from 1.44% to 10.0% and averaging 5.3% during the previous decade. To interpret the drop in 1974, it is useful to recognize the reasons for previous growth in usage per customer.

a. Even if usage by *existing* customers remains constant, there can still be growth in average usage per customer. The fraction of new customers classified RA has been very high in recent years, thus increasing the fraction of total residences heating space electrically. Nearly all new customers have chosen electric water heating recently. Thus the *average* usage per residential customer is increased. Roughly 20% of average growth per customer has been due to this effect recently.

b. Growth rates in usage per RA customer have averaged only 0.525% annually since 1960, indicating near saturation in usage capacity. This compares to 3.44% for RW and 4.94% for R classification, indicating that these classes are still adding electrical fixtures and appliances, i.e., increasing their usage capacity. Since 82% of residential customers were classified R or RW in 1973, this effect has been the primary component in the growth in average usage per residential customer.

c. The extent to which electrical fixtures and appliances are actually used will be called "utilization factor". A change in utilization factor can result from changing habits (thermostat settings, for example), structural changes (such as adding insulation), or appliance efficiency changes. Within any of the three residential classifications, therefore:

Average Usage/Customer = Usage Capacity × Utilization Factor

12. To make quantitative estimates of average usage per customer, we first forecast usage capacity for each residential classification.

a. We assign a value of 1.0 to the utilization factor for 1973 for all classes. For example, the average usage/RA customer of 20,606 KWH/yr equals the Usage Capacity for 1973.

b. We judge it reasonable to expect the Usage Capacity for RA at saturation to reach 21,600 KWH/yr.†

c. Although exact figures for use of electricity for space and water heating are not available in the record, an estimate may be made from past and expected

*Two other estimates of 20,439 and 24,995 new residential customers can be inferred from DPC's 1974 Annual Report. Since the Board's analysis was essentially complete before receiving this report, and since the agreement is quite close for our purposes here, the 23,690 estimate is retained.

†By saturation, we mean to include only those electrical appliances and installed equipment now in common use by RA customers. We do not include new electric-powered machines such as rechargeable battery-powered tools and vehicles which may well begin to place additional demands on the DPC system during the next decade.

future differences in annual per-customer usage between RA and RW, and between R and RW. We thus estimate 8,300 KWH/yr for space heating and 4,400 KWH/yr for water heating in the DPC service area.* Subtracting the 8,300 KWH/yr for space heating from the assumed saturation value of 21,600 KWH/yr for RA, we get 13,300 as the saturation value for RW. From that we subtract 4,400 KWH/yr and get 8,900 KWH/yr for R class at saturation. These numbers compare with 1973 values of 10,444 and 5,929 for RW and R classifications, respectively.

d. Just as there was some real growth in number of customers during 1974, we also assume some small upgrading of Usage Capacity during the recession years of 1974–1975. (See Figure A.3a.) For the postrecession years, we find it reasonable to assume that Usage Capacity growth rates then rise to near 1973 values (for R and considerably less for RW and RA) by 1979–1980 and then fall off to near zero as saturation is approached. (See Figure A.3a.)

e. From these assumed growth rates, we then calculate the Usage Capacity for each residential class as shown in Figure A.3b.

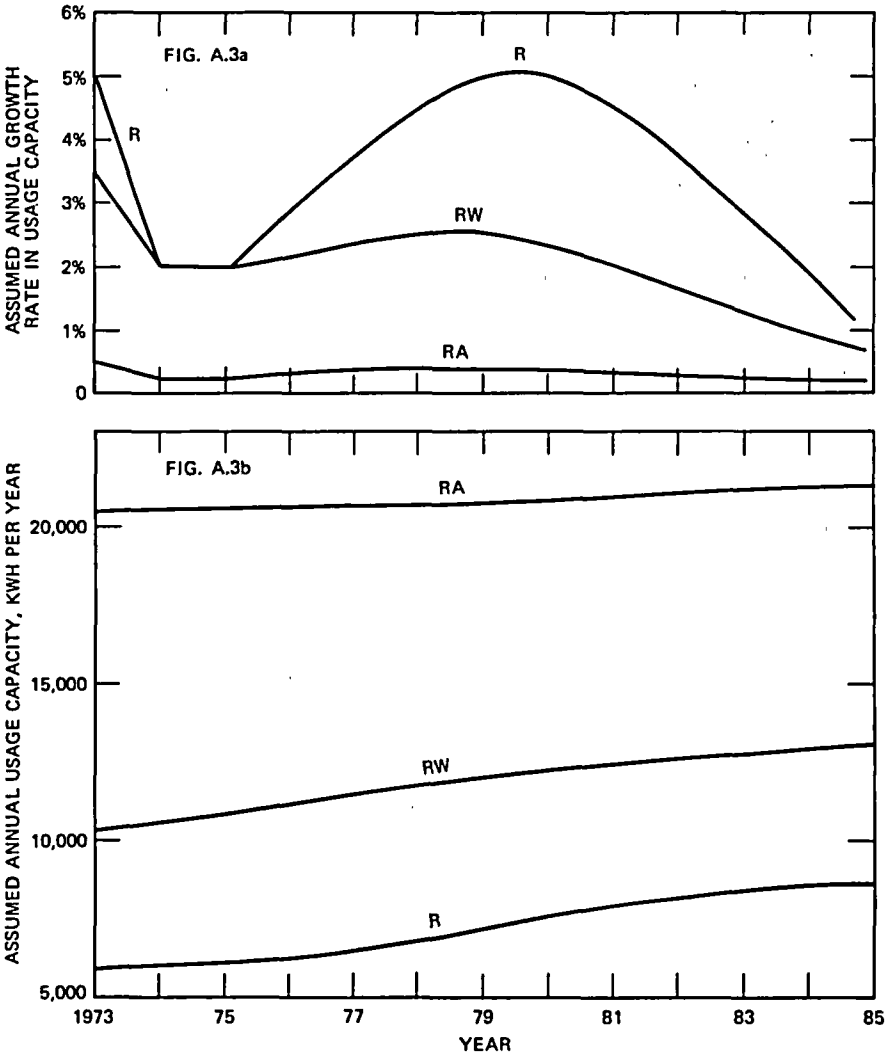
13. Residential utilization factor during 1974 and beyond is assumed to be the same for each residential classification and is estimated to be as shown in the following table and in Figure A.4.

Year	Estimated Residential Utilization Factor	Change Over Previous Year
1973	1.0000	
1974	0.9625	–3.65%
1975	0.9363	–2.82%
1976	0.9500	1.46%
1977	0.9730	2.42%
1978	0.9800	1.75%
1979 and beyond	0.9800	0

It will be noted that somewhat more than 30% of the reduction in Utilization Factor estimated for the recession years is retained for all future years in recognition of permanent improvements in structures and appliance efficiencies.

14. The product of usage capacity and utilization factor provides our estimate of average usage per customer for each residential classification in 1974 and beyond. We now turn to expected growth in number of customers in each residential classification. As previously noted, the growth rate in number of residential customers dropped from about 4%/yr in 1973 to 2.575%/yr in 1974.

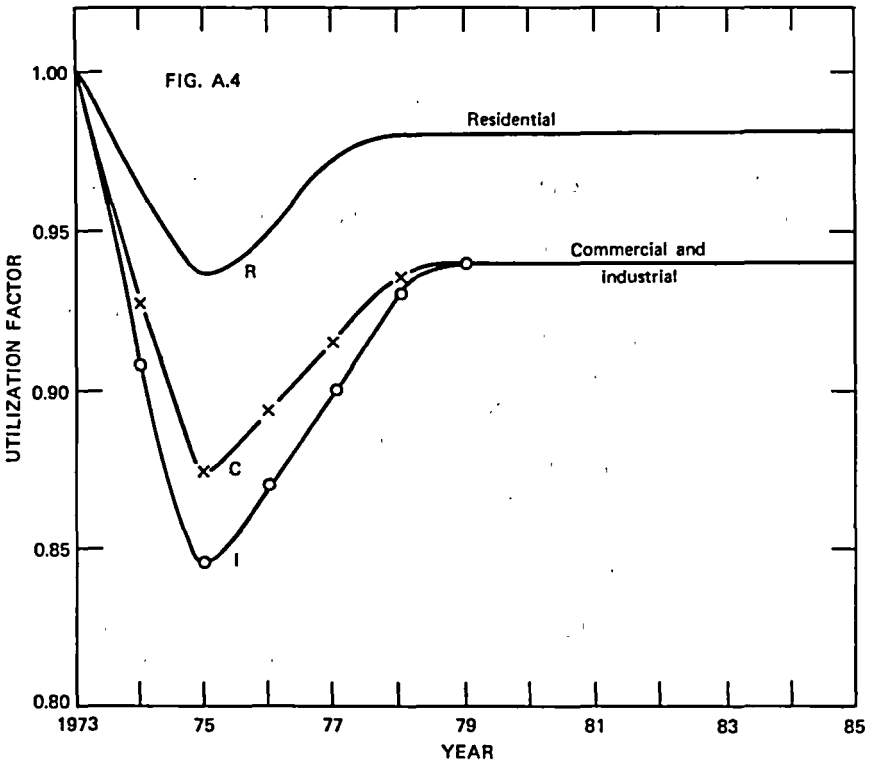
*We infer from the results presented in paragraph 23c, *infra*, that the overall result in terms of year-of-need is quite insensitive to the exact values for space and water heating.



We assume a further drop to 2%/yr in 1975, followed by a gradual rise to near prerecession rates by 1978, viz:

2.5% real growth rate in 1976
3.0% in 1977
3.5% in 1978
3.5% thereafter*

*By way of comparison, these assumptions lead to an estimate of 246,130 new residential customers by 1981 vs. the 256,000 estimated by DPC (Tr. 4150).



15. To estimate the effect of the trend toward use of electricity for water and space heating, we note that the fraction of new customers classified RA has risen steadily from 30% in 1963 to an average of 68.8% in the 1970–1973 period. It then dropped to 58% in 1974. Nearly all (99–100%) of new customers have chosen to heat water electrically in the 1970's. The Board believes that these trends will continue in the future and estimates that the fraction of *new* customers in each class will be as follows:

	RA	RW	R
1974	58%	40%	2%
1975	60%	38%	2%
1976	62%	36%	2%
...	...	...	...
1983	76%	22%	2%
1984	78%	20%	2%
1985	80%	18%	2%

These assumptions lead to the following breakdown of total residential customers:

	RA	RW	R
1963	2.1%	63.1%	34.8%
1973	18.0%	55.4%	26.6%
1983	31.2%*	48.7%	20.1%

16. Combining all these effects leads to rates of growth in total residential usage which increase from 1.4% in 1975 to 8.8% in 1977 and then drop steadily to 5% by 1985. By way of comparison, residential usage growth rates averaged 9.35% over the prerecession decade.

17. We now deal with the problem of real (constant dollar value) price increase for electrical energy and customer response to it. For the purpose of the lower bracket case, the Board assumes a constant 2% per year increase in real price of electricity over and above the 1975 price for all customer categories and classes. This leads to a total increase of 26.8% over 12 years (from 1976 through 1987) and compares to the 23.3% increase assumed by FEA[2] in the 12 years from 1974 through 1985.† We further assume a negative price elasticity of 0.5 for residential usage, i.e., as the real price of electricity increases 2% per year, the residential growth rates previously computed (par. 16 above) are reduced by 1.0% per year.

18. The final lower bracket forecast for residential usage is shown in Figure A.5a. As in Figure A.2a before, all points have been normalized by dividing by the total residential usage in 1973.

Recession and Postrecession Periods, Industrial and Commercial Customers

19. To the extent possible,‡ the same techniques just described to forecast residential usage were also used for commercial and industrial usage. Notable differences in assumptions are that:

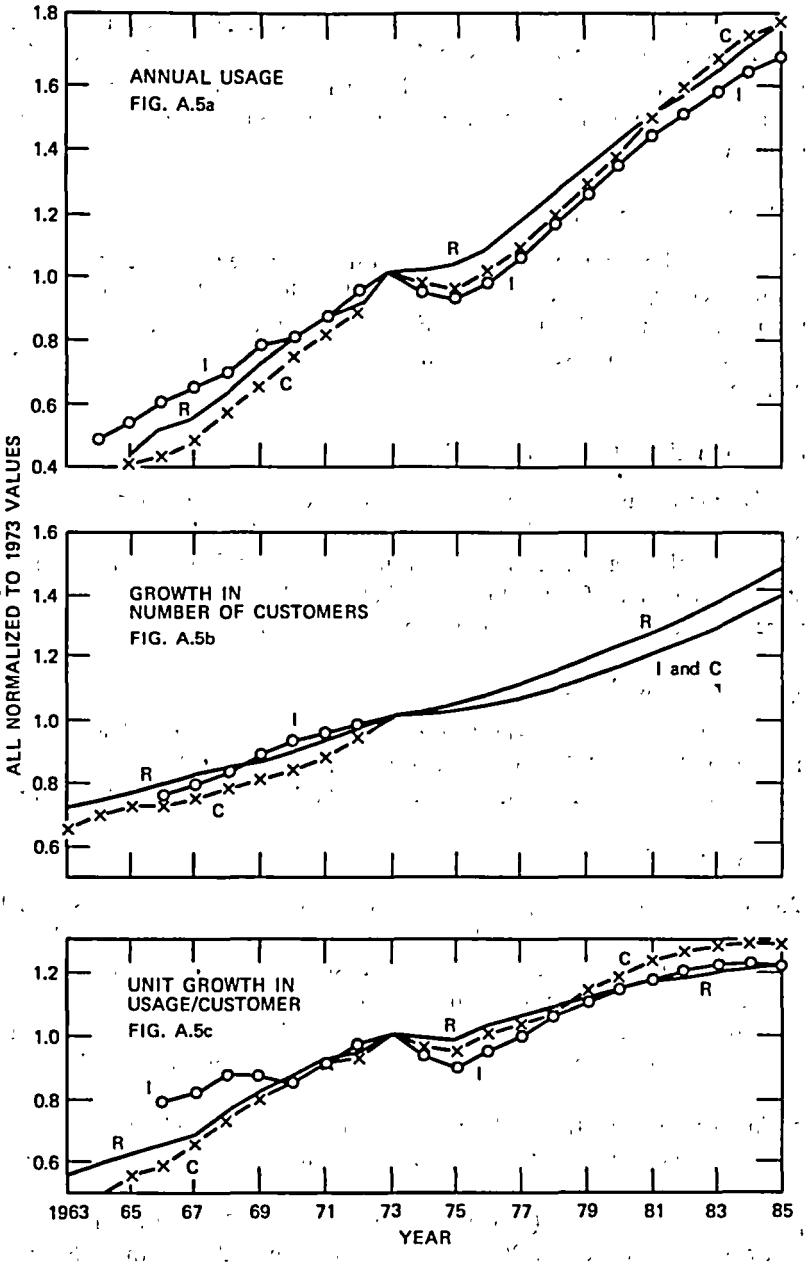
a. Postrecession recovery growth rates for number of customers and Usage Capability are lower and peak later than for residential.

b. Utilization Factors drop further during recession years, recover slower, and greater permanent savings are assumed. (See Fig. A.4.)

*By way of comparison, DPC estimates that 33% of residential customers will be classified RA in 1982 (Tr. 4148).

†In essence, we assume that the major price increases to offset the quantum jump in the price of imported oil and the adjustments in other fuels will have occurred in 1973, 1974 and 1975.

‡The only real difference is that the information available in the record does not include detailed annual statistics on use of electricity for space and water heating by commerce and industry. That similar trends exist, however, is supported by Mr. Beyer's testimony (reference 1 at page 6).


ANNUAL USAGE
FIG. A.5a
GROWTH IN
NUMBER OF CUSTOMERS
FIG. A.5b
R
I and C
UNIT GROWTH IN
USAGE/CUSTOMER
FIG. A.5c
R
I
C
ALL NORMALIZED TO 1973 VALUES
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
1963
65
67
69
71
73
75
77
79
81
83
85
YEAR

c. A negative price elasticity factor of 1.0 is assumed for commercial and industrial, i.e., usage growth rates in 1976 and beyond are all reduced 2% per year (rather than 1% per year as for residential). Forecasts for commercial and industrial usage, number of customers, and average usage/customer, are plotted in Figure A.5.

Other Regular Customers

20. As noted previously, other regular customers have accounted for a nearly constant percentage of total usage although there is a small but steady increase in recent years. (See Figure A.1.) For the lower bracket case, however, a constant 15% of total usage was assumed after reductions for price elasticity were made.

Conversion of Usage to Peak Power Demand

21. During the prerecession decade, the ratio of peak power demand to total customer usage averaged 0.185 MW per million KWH. While there are valid reasons* for believing that this ratio will increase in the future, it has been held constant at that value for the lower bracket case throughout the recession and postrecession periods, since we are making a conservative analysis.

Final Lower Bracket Results

22. The final lower bracket forecast of peak power demand is shown in Figure A.6 and Table A.2. To maintain a reserve of about 3400 MW[5] requires that new generating capacity be added before the 1981 summer peak is reached.

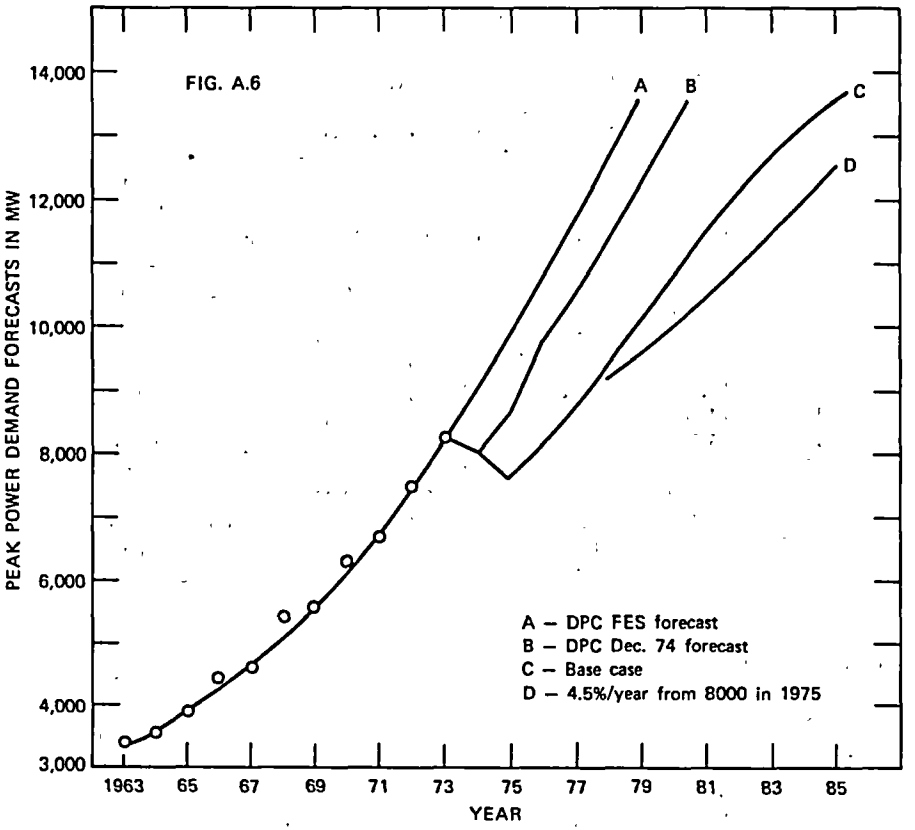
Sensitivity Analysis

23. As stated in paragraph 5, above, the Board believes that these results represent a reasonable lower bracket and that actual future peak power demand will be somewhat greater than the lower bracket forecast. In making the many assumptions and judgments involved, the Board believes it has been sufficiently conservative for the purpose intended. Nevertheless, we now go back and explore what the effect of somewhat different assumptions would be on year-of-need:

a. The recession continues through 1976 and recovery begins in 1977 rather than 1976: The overall effect would probably be to simply delay year-of-need to the Spring of 1982.

b. Overall growth rates (which range from 4 to 8.4% per year in the lower bracket case) are reduced by 20%: Year-of-need delayed 24 months to Spring of 1983. If rates are reduced 25%, year-of-need is delayed 29 months to Fall 1983.

*For example, see Cleary, reference 2 at page 12.



If rates are increased 25%, year-of-need is advanced to the Spring-Summer of 1979.

c. If the fraction of new residential customers classified RA drops 2%/yr from 58% in 1974 rather than increasing as in the lower bracket case, time of need is delayed two months. If commerce and industry follow the same trend away from electric space and water heating, time of need is delayed 8 months. On the other hand, should the trend toward selection of (or conversion to) electric heat be double that assumed in the lower bracket case, time of need would be advanced approximately the same amount, i.e., 1–2 months for residential only and 6–8 months if all customers follow the same pattern.

d. Price response (Real Price x Price Elasticity) increased (from 1%/yr for residential and 2%/yr for industrial and commercial) by 50% to 1.5% for R and 3% for I & C: Delay of 12 months to Spring of 1982. A 50% reduction in price response (to 0.5% for R and 1% for I & C) advances time of need by four months.

TABLE A.2

RESULTS OF LOWER BRACKET FORECAST

Usage in Millions of KWH per Year

Year	Residential	Commercial	Industrial	Other Regular	Total Usage	Peak Power Demand (MW)
1975	10,466	6,912	17,345	6,129	40,852	7,558
1976	11,066	7,326	18,441	6,501	43,334	8,017
1977	11,932	7,893	19,931	7,017	46,773	8,653
1978	12,719	8,605	21,769	7,606	50,699	9,379
1979	13,471	9,273	23,360	8,137	54,241	10,035
1980	14,243	9,988	24,920	8,675	57,826	10,698
1981	15,013	10,757	26,582	9,240	61,593	11,395
1982	15,771	11,454	28,082	9,762	65,069	12,038
1983	16,509	12,053	29,375	10,226	68,163	12,610
1984	17,222	12,533	30,424	10,621	70,800	13,098
1985	17,909	12,884	31,195	10,941	72,929	13,492

e. System load factor follows lowering trend (vs. constant assumed in lower bracket case): Time of need moved up 3 to 12 months depending on how curve is extrapolated.

f. Ratio of usage of Other Regular Customers to total customer usage follows increasing trend (vs. constant assumed in lower bracket case): Moved up 2–3 months. Time of need still Spring 1981.

g. Required reserve of 3380 MW in lower bracket case (23% of capacity before Catawba) reduced to 2360 MW or 16% of capacity before Catawba: Delayed 16 months to Fall 1982. If required reserve is increased to 4000 MW, Catawba would be required six months earlier.

24. Since the perturbations just explored are considered to be quite large, the exploration of yet more pessimistic or optimistic assumptions is considered unnecessary and unwarranted. From this analysis, the Board concludes that the model developed is not overly sensitive to the assumptions employed and that the case studied is reasonably reliable as a probable lower bracket.

REFERENCES

1. Advance written testimony of Franz W. Beyer, DPC, February 7, 1975, incorporated as if read following Tr. 3640.
2. Advance written testimony of Staff witness Cleary, December 19, 1974, incorporated as if read following Tr. 3831.
3. Supplemental testimony of Jesse Riley, February 21, 1975. Intervenor's Exhibit 6E.
4. Written testimony of FPC Witness Nightingale, incorporated as if read following Tr. 905.

5. Paragraphs 54 through 61 of this Board's Partial Initial Decision, April 9, 1974.
6. Duke Power Statistical Supplement, 1963–1973, Attachment 17 to Intervenor's Exhibit.
7. DPC Annual Report 1974.
8. Breakdown of usage by residential classes from 1957–1973, Attachment 6 to Intervenor's Exhibit.

APPENDIX B

BOARD'S ANALYSIS OF APPLICANT'S FINANCIAL QUALIFICATIONS

1. In evaluating the financial qualifications of the Applicant to construct the Catawba facility, the Board is faced with a situation similar to that encountered in connection with estimating the basic need for the electrical power to be generated by these reactors. There is a plethora of pertinent information, substantial areas of disagreement between the Intervenor and the other two parties, and many uncertainties in regard to future trends in economic and fiscal factors. Under these circumstances, we consider it appropriate to use the projected values for electrical energy demand set forth as "lower bracket" values in *Appendix A*. In addition, we will attempt to separate the financial impact of constructing Catawba from the additional impact associated with proposed construction of the Perkins and Cherokee reactors.

2. The data needed for this evaluation are contained in the three tables shown *infra*. Table B.1 gives 1974 electrical rates for the four categories of service in the last column. These are obtained by dividing revenues, taken from Duke Power Company's 1974 Annual Report, by usage values from the same

TABLE B.1

1974 Rates

Units	Usage (10^6 KWH)	Revenue (10^6 $)	Rate ($/$10^6$ KWH)
Residential	10,325	279.726	27,092
Commercial	7,053	162.775	23,079
Industrial	17,881	267.723	14,972
Other	7,085	109.294	15,426

source which are shown in the other two columns. Table B.2 shows two columns for each of the four revenue categories. The first column in each case gives the "lower bracket" usage projections from Table A.2 of *Appendix A*. The second column gives projected revenues based on 1974 rates and is the product of the

TABLE B.2

PROJECTED REVENUE

(KWH Sales Corrected for Price Elasticity Times 1974 Rates)

	Residential		Commercial		Industrial		Other	
Year	Lower Bracket Case Usage (10^6 KWH)	Revenue at 1974 Rates (10^6 $)	Lower Bracket Case Usage (10^6 KWH)	Revenue at 1974 Rates (10^6 $)	Lower Bracket Case Usage (10^6 KWH)	Revenue at 1974 Rates (10^6 $)	Lower Bracket Case Usage (10^6 KWH)	Revenue at 1974 Rates (10^6 $)
1975	10,466	283.545	6,912	159.522	17,345	259.689	6,129	94.546
1976	11,066	299.800	7,326	169.077	18,445	276.099	6,501	100.284
1977	11,932	323.262	7,893	182.163	19,931	298.405	7,017	108.244
1978	12,719	344.583	8,605	198.595	21,769	325.925	7,606	117.330
1979	13,471	364.956	9,273	214.012	23,360	349.746	8,137	125.521
1980	14,243	385.871	9,988	230.513	24,420	373.102	8,675	133.821
1981	15,013	406.732	10,758	248.284	26,582	397.986	9,240	142.536
1982	15,771	427.268	11,454	264.347	28,082	420.444	9,762	150.589
1983	16,509	447.262	12,053	278.171	29,375	439.803	10,226	157.746
1984	17,222	466.578	12,533	289.249	30,424	455.508	10,621	162.297
1985	17,907	485.191	12,884	297.350	31,195	467.052	10,941	168.776

TABLE B.3

TOTAL REVENUE

(Millions of Dollars)

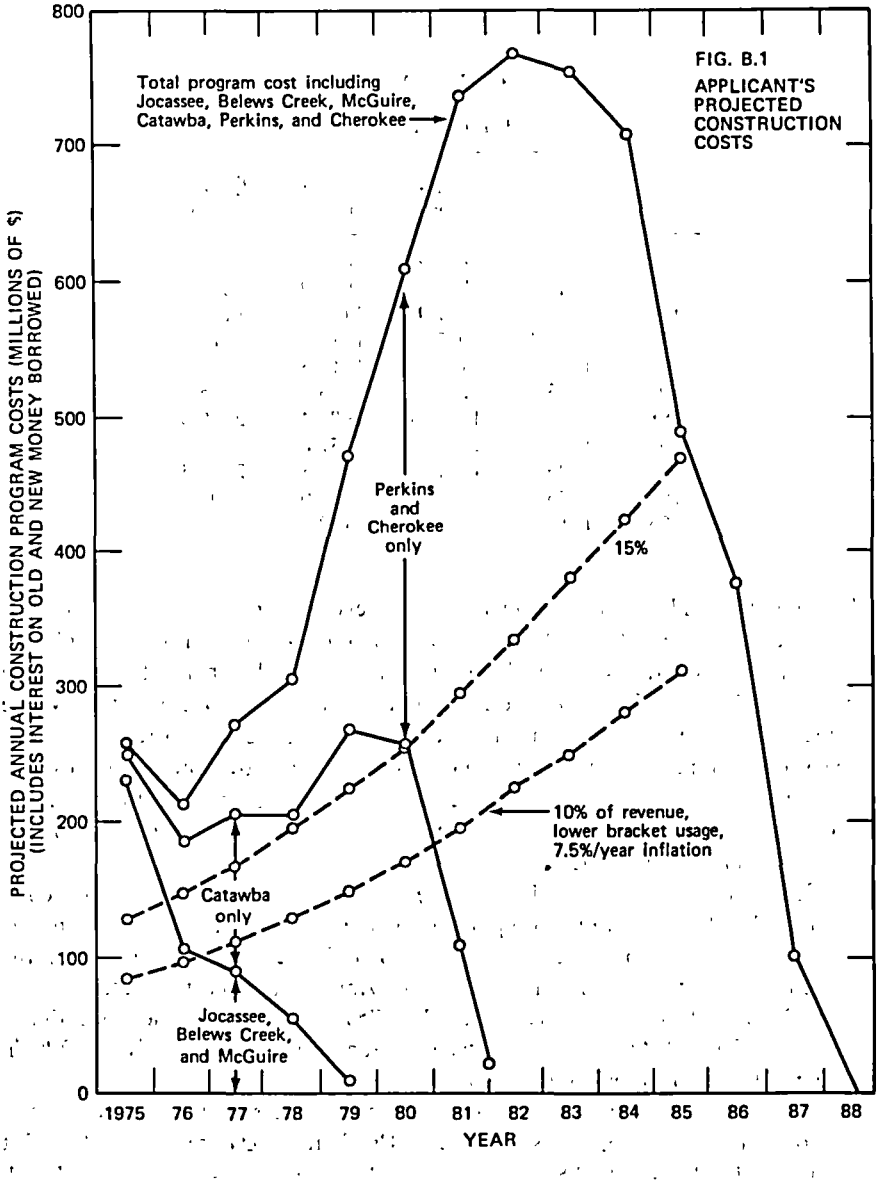
Year	1974 Rates	2%/yr. Increase	7½%/yr. Increase	9½%/yr. Increase
1975	797.3	813.2	857.1	873.0
1976	845.3	879.5	976.9	1013.5
1977	912.1	967.9	1133.0	1197.5
1978	986.4	1067.7	1317.3	1418.1
1979	1054.2	1163.9	1513.5	1659.6
1980	1123.3	1265.0	1733.6	1936.3
1981	1195.5	1373.3	1983.4	2256.6
1982	1262.6	1479.3	2251.8	2609.6
1983	1323.0	1581.1	2536.5	2994.3
1984	1373.6	1674.4	2831.0	3404.1
1985	1418.4	1763.6	3142.7	3849.0

first column and the 1974 rate for this category from Table B.1. Table B.3 shows total revenues for all four categories at the 1974 rate in the first column, the values being the sum of the values of revenue shown for the individual categories in Table B.2. The second column shows projections of total revenue using a 2% per year compounded increase due to an increase in real costs, i.e., the value assumed in Appendix A. The third column shows projections using a 7½% per year compounded increase due to inflation, and the third column shows projections using a 9½% per year compounded increase, i.e., combining real cost increases and inflation.

3. In order to obtain an idea of the relative size of the construction costs associated with the various components of the DPC construction program, we have plotted values for these costs in Figure B.1. These values are taken from the Appendix to Intervenor's Exhibit 6 titled "Appendix to Partial Testimony of Jesse Riley for Intervenor". (Tr. 4055-58, 4078) The portion of the Appendix of interest is labeled Attachment 10, having been furnished originally by DPC in response to one of Intervenor's discovery questions.

4. Referring to Figure B.1, construction costs* are shown by the solid lines, the lower plot being for Jocassee, Belew's Creek and McGuire. The middle plot represents total costs minus Perkins and Cherokee; thus, the difference between the two lower curves is the cost of Catawba. The top plot represents the total construction program so that the difference between the top and middle plots represents the costs of Perkins and Cherokee. The dotted plots represent 10% and 15% of projected revenue. Since the data plotted in Figure B.1 for

*The term "construction costs" as used here is explained in paragraph 5 below.



construction costs include a 7½% allowance for inflation, and since one of our purposes is to compare construction costs with revenue, we have used data from the 7.5% column of Table B.3.

5. The Board notes that the total construction costs shown in Attachment A of Applicant witness Ashmore's testimony (following Tr. 3209) are substantially greater than those in the Appendix to Intervenor's Exhibit 6, which are plotted

in Figure B.1 of this Board analysis. During cross-examination of Ashmore in regard to this matter, Ashmore testified that the Exhibit 6 Appendix figures were correct as of the end of November 1974, and that the figures in his Attachment A referred to the expense of all DPC construction programs and not just to power plant construction. (Tr. 3380-84) Thus, the total capital requirements of DPC appear to be about twice the cost of power plant construction. The record does not show to what degree the additional capital requirements just referred to are related to plans for constructing Perkins and Cherokee, as distinct from Catawba and the plants presently under construction. However, it is reasonable to assume, as a rough approximation, that these additional capital requirements will divide in the same ratio as shown in Figure B.1 for power plant construction costs.

TABLE B.4

FRACTION OF CONSTRUCTION COSTS DUE TO PERKINS & CHEROKEE

	Total Program	Catawba Plus Units Under Construction		Perkins & Cherokee	
Year	10^6 $	10^6 $	% of Total	10^6 $	% of Total
1975	258.100	253.799	98.3	4.301	1.7
1976	205.800	183.092	89.0	22.708	11.0
1977	272.939	206.865	75.8	66.074	24.2
1978	305.806	202.813	66.3	102.993	33.7
1979	472.248	267.240	56.6	205.008	43.4
1980	601.581	256.122	42.6	345.459	57.4
1981	732.813	108.136	14.7	624.677	85.3
1982	766.692	19.147	2.5	747.545	97.5
1983	754.571	1.169	0.2	753.402	99.8

6. Table B.4 shows the yearly costs of Perkins and Cherokee and the percentage of the total program costs that they represent, using the Exhibit 6 Appendix data. The same information is shown for Catawba plus the other units already under construction.

7. Referring to Figure B.1, we note that, for the period 1975 to 1979, construction costs (minus Perkins and Cherokee) stay about constant. This is because the increasing costs of Catawba are balanced by decreasing costs of Jocassee, Belews Creek and McGuire. Since projected income is increasing during this period, the financial burden of carrying on the Catawba construction program during this period will decrease. It should be noted that, although an inflation rate of 7½% was used for all the curves of Figure B.1, the positions of the curves relative to each other would not be altered were a different figure for inflation utilized for both cost estimates and revenues.

APPENDIX C

LIST OF EXHIBITS OFFERED AT REOPENED HEARING

Applicant's Exhibits

10 Letter from William Porter to Howard M. Wilchins, Esq., 2/12/75, and Attachment A. (Identified Tr. 3212)

11 Chart of Progress on Rate Increases (Identified Tr. 3636, Received in Evidence Tr. 3636)

12 Letter from Duke to NRC, dated 9/30/74 (Identified Tr. 4096, Received in Evidence Tr. 4096)

13A Letter to EPA from S. C. Department of Health and Environmental Control, dated 12/27/74 (Identified Tr. 4098, Received in Evidence Tr. 4103)

13B Letter to AEC from S. C. Department of Health and Environmental Control, dated 1/15/75 (Identified Tr. 4096, Received in Evidence Tr. 4103)

14 Revision to RESAR 15.3 with attached tables and figures (Identified Tr. 4117)

15 Figure 3, Moving Averages of Growth Rates on Duke System, *1961—1980* (Identified Tr. 4342, Received in Evidence Tr. 4348)

Intervenor's Exhibits

Intervenor's Exhibits listed below were proffered at various times during the reopened hearing. (See Tr. 3514, 3635, 4012, and 4045) In view of objections interposed by the Applicant, they were all offered in evidence at Tr. 4055-4057, and admitted by the Board at Tr. 4073-4078.

6A	Partial Testimony of Jesse Riley, for Intervenor and Appendix thereto containing DPC data obtained via discovery and used in the preparation of Intervenor's exhibits.
6B	Forty-four figures, including Figure 44A, as attachments to 6A.
6C	Tables as attachments to 6A.
6D	Newspaper articles as attachments to 6A.
6E	Supplemental Testimony of Jesse Riley, dated 2/21/75.
6F-1, 2, 3, 4, and 5	Explanatory computations of data on Figure 29-A of Intervenor's Exhibit 6B.
6G-1, 2, 3, and 4	Supplemental figures to Figure 45 of Intervenor's Exhibit 6B.

Staff Exhibits

None

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-35

ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Chairman
Dr. Frederick P. Cowan, Member
Ralph S. Decker, Member

In the Matter of

DUKE POWER COMPANY

(Catawba Nuclear Station, Units 1 and 2)

Docket Nos. 50-413A
50-414A

June 30, 1975

Upon applicant's petition for a waiver from or exception to the application of the ECCS Final Acceptance Criteria, including the requirements of 10 CFR §50.46(a)(3), to the construction permits for the Catawba plant, Licensing Board finds that applicant has made a *prima facie* showing of special circumstances indicating that the application of that rule in this proceeding would not serve the purposes for which it was adopted, and that a waiver or exception would be warranted.

Question certified to the Commission.

RULES OF PRACTICE: CERTIFICATION OF QUESTION TO COMMISSION

Where a party, pursuant to 10 CFR §2.758(b), petitions for a waiver of or an exception to a particular Commission rule or regulation (on the ground that, because of special circumstances, application of the rule would defeat the purpose of the rule), it must (1) identify the specific aspect(s) of the subject matter of the proceeding as to which the purpose of the rule would not be served, and (2) set forth with particularity the special circumstances alleged to justify the waiver or exception requested. Upon a *prima facie* showing of special circumstances, a licensing board must certify such petition to the Commission.

MEMORANDUM AND ORDER

The Board has before it a Petition filed May 13, 1975, by the Applicant, Duke Power Company, entitled "Renewal of Applicant's Petition for Waiver or

Exception Pursuant to 10 CFR Section 2.758," requesting a waiver from or exception to the imposition of 10 CFR 50.46, regarding compliance with the Final Acceptance Criteria of Appendix K.[1] The Regulatory Staff of the Commission has filed a Response under date of May 27, 1975.

By way of background, it is to be noted that on December 19, 1974, this Board issued a "Supplemental Partial Initial Decision on Compliance with Interim ECCS Criteria"[2] stating that it was taking such action

> in an effort to afford applicant the opportunity to avoid certain procedural delays which are independent of, and without prejudice to the further proceedings to be conducted herein.

In that decision, the Licensing Board concluded that:

> . . .the proposed reactors have been designed so that their calculated cooling performance, following postulated loss-of-coolant accidents, conforms to the criteria set forth in the Commission's Interim Acceptance Criteria for Emergency Core Cooling Systems. (RAI-74-12, 1117, 1122)

Thereafter, on December 27, 1974, in an effort "to avoid certain procedural delays," Applicant filed a "Petition for Waiver or Exception Pursuant to 10 CFR Section 2.758",[3] seeking waiver of the application of 10 CFR Section 50.46(a)(3), which requires that for construction permits issued after December 28, 1974, compliance with Section 50.46 and the Final Acceptance Criteria of Appendix K must be shown. On January 16, 1975, the staff filed its "Response to Applicant's Petition for Waiver or Exception Pursuant to 10 CFR Section 2.758", alleging that the Applicant failed to make the required showing of special circumstances before its petition could be certified to the Commission.

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[1] At the same time, the Applicant filed directly with the Commission a request for exemption, pursuant to 10 CFR 50.12(a), seeking similar relief and posing the identical issue raised by the aforementioned Petition, i.e., whether the December 28, 1974, cutoff date contained in 10 CFR Section 50.46(a)(3) requiring compliance with the Final Acceptance Criteria before a construction permit can issue, should be waived or an exception be made in the light of the circumstances presented in the Catawba proceeding.

[2] RAI-74-12, 1117.

[3] 10 CFR Section 2.758(b) provides that a party to an adjudicatory proceeding may petition for a waiver of or exception to a particular Commission rule or regulation on the sole ground that ". . .special circumstances with respect to the subject matter of the particular proceeding are such that application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted. . . ." Such a petition must be accompanied by an affidavit which (1) identifies the specific aspect or aspects of the subject matter of the proceeding as to which the purpose of the rule would not be served and (2) "set[s] forth with particularity the special circumstances alleged to justify the waiver or exception requested." If the petition, affidavit and any response permitted by Section 2.758(b) make a *prima facie* showing of what is required by Section 2.758(b), the application must, under subdivision (d) of Section 2.758, be certified to the Commission for determination.

During the course of the reopened hearings in these proceedings, the Board heard oral argument on February 26, 1975, from the parties on the then pending petition (Tr. 4106–4116) and, ruling on the record, denied Applicant's petition without prejudice to a further filing. (Tr. 4109–4112) In so ruling, the Board took cognizance of the fact that Applicant had already submitted the data required to show compliance with the Final Acceptance Criteria for ECCS to the Staff (Applicant's Exhibit 14 marked for identification at Tr. 4117 and submitted as Amendment 17 to the Catawba Preliminary Safety Analysis Report on February 27, 1975), and that Staff review was commencing and had expected to be completed in the form of a Supplement to the Safety Evaluation Report on about March 21, 1975. (Tr. 3204–05, 4109, 4112, 4540)

Since the close of the hearings, the Staff, in correspondence to the Board and parties, has advised that issuance of the Staff's Supplement would be delayed due to the need for obtaining additional information from the Applicant and its vendor, which correspondence is attached to Applicant's petition. Applicant asserts, in an attached affidavit by the Chief Engineer of its Mechanical and Nuclear Division, that the review of Catawba's compliance with the FAC will not be completed until early in 1976.

The Staff, in its Response, does not address the substance of Applicant's position, but contends that since the issues raised by this petition are identical to those now before the Commission in Applicant's request for exemption,[4] there would be "no useful purpose served by further briefing and argument by the parties until such time as the Commission acts on the exemption request."[5]

The Board, having given careful consideration to Applicant's renewed petition, is of the opinion that Applicant has now made a *prima facie* showing of special circumstances indicating that, in the context of this proceeding, the application of the provisions of 10 CFR 50.46(a)(3) to the proposed Catawba plant would not serve the purposes for which that regulation was adopted, and that a waiver of or exception to said regulation would be warranted.

Accordingly, in light of the foregoing, and pursuant to the provisions of 10 CFR Section 2.758(d), the Board HEREBY CERTIFIES TO THE COMMISSION FOR DETERMINATION the question of whether the application of 10 CFR Section 50.46(a)(3) in this proceeding to the proposed Catawba Nuclear Power Station should be waived or an exception made.

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[4] See footnote 1, *supra*.

[5] In this connection, it is noted that the Commission, by Order dated June 17, 1975, directed the Staff to submit comments on Applicant's exemption request, including consideration of specific matters set forth in the Order.

Dr. Frederick P. Cowan and Mr. Ralph S. Decker, Members of the Board, join in this Memorandum and Order.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND LICENSING BOARD

Max D. Paglin, Esq., Chairman

Dated at Bethesda, Maryland
this 30th day of June, 1975

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

LBP-75-36

ATOMIC SAFETY AND LICENSING BOARD

Douglas V. Rigler, Chairman
John M. Frysiak, Member
John H. Brebbia, Member

In the Matter of

THE TOLEDO EDISON COMPANY and THE CLEVELAND ELECTRIC ILLUMINATING COMPANY (Davis-Besse Nuclear Power Station, Unit 1)

Docket No. 50-346A

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, ET AL. (Perry Nuclear Power Plant, Units 1 and 2)

Docket Nos. 50-440A and 50-441A

June 30, 1975

Upon applicants' proposal for expediting the antitrust hearing process (including a motion to accept certain assumptions *arguendo*, and thereby to limit the hearing to a determination of whether sufficient nexus would exist between the "situation" and the "activities" under the license if certain license conditions proposed by the applicants, relating to access to the facility, were accepted), Licensing Board finds (1) such assumptions inappropriate since they insulate the effect of operating the nuclear facilities for which a license is sought from other system-wide activities; (2) there is no benefit in conducting a separate hearing on applicants' proposals since a sufficient nexus between the nuclear facility and the applicants' total system or power pool has been shown to warrant a full evidentiary hearing on the antitrust implications thereof; and (3) in fashioning the appropriate relief, it cannot be bound by the terms of one party's proposals.

Proposal and motion denied.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

In determining whether a sufficient nexus exists between the "situation" allegedly inconsistent with the antitrust laws and the "activities" under the

license under consideration, the relationship of the specific nuclear facility to the applicants' total system or power pool must be considered. *Waterford II*, CLI-73-25, RAI-73-9 619.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

A licensing board, under its antitrust jurisdiction, may consider the propriety of wide-area pooling arrangements to which the units under consideration will be important energy sources.

ATOMIC ENERGY ACT: ANTITRUST JURISDICTION

The "nexus" referred to by the Commission in *Waterford II* (CLI-73-25) is the connection between a "situation" inconsistent with the antitrust laws and the "activities" under the license. If the Board is satisfied that such nexus exists, it need not again consider the "nexus" question in fashioning appropriate relief.

RULING OF BOARD WITH RESPECT TO APPLICANTS' PROPOSAL FOR EXPEDITING THE ANTITRUST HEARING PROCESS

I. BACKGROUND

On March 14, 1975, Applicants in the above proceeding filed a pleading entitled "Applicants' Proposal for Expediting the Antitrust Hearing Process" which included as an exhibit certain proposed license conditions for Davis-Besse Nuclear Unit 1 and Perry Nuclear Units 1 and 2. Incorporated within these pleadings was a motion for the Board to accept certain assumptions *arguendo* for the purpose of (a) litigating the nexus issue, and (b) determining that the initial matter for hearing is whether Applicants' offer of access to nuclear facilities as set forth in their proposed license conditions eliminates the nexus between any situation inconsistent with the antitrust laws (the "situation") and activities under the proposed licenses. Applicants further moved for a hearing limited to the determination of whether sufficient nexus would exist between the "situation" and the activities under the license (the "activities") if its proposal were accepted.

The Nuclear Regulatory Commission Staff (Staff), the Department of Justice (Justice) and the City of Cleveland (City) each filed objections to Applicants' motion.

The Board heard argument on Applicants' proposal during the 4th prehearing conference which was held on April 21, 1975. At that conference, immediately prior to the oral argument, Applicants submitted another document

dated April 21, 1975, entitled "Applicants' Argument in Support of Its Proposal for Expediting the Antitrust Hearing Process."

Other parties to these proceedings claimed surprise and objected to the Board's receipt of this additional written argument. The Board concluded that receipt of the written argument would save time in that Applicants' counsel would not read essentially the same materials into the record during the course of oral argument. At the same time, the Board was of the opinion that the other parties would be prejudiced if they were denied the right to give a considered reply to the rather extensive argument submitted by Applicants. Accordingly, the Board gave leave to the other parties to file additional written responses to Applicants' written argument of April 21, 1975. These additional responses have been received and considered together with all other pleadings and oral arguments relating to Applicants' proposal.

II. THE PROPOSAL

Succintly stated, Applicants have offered limited assumptions of antitrust violations in regional power exchange transactions, pooling arrangements, bulk electrical power sales and retail electrical power sales in the CAPCO* market. Within this market, Applicants assumed *arguendo* that they have acted and could continue to act to preclude other electric entities from obtaining sources of bulk power from electric entities outside of the stipulated geographic market. Applicants further assumed *arguendo* that they jointly have prevented other electric entities within the market from achieving the same benefits of coordinated operation, coordinated development, access to the benefits of economy of size from large nuclear generating facilities, and other benefits which they achieve pursuant to agreement with each other. Applicants further assumed that the purpose of these acts has been to eliminate electric entity competitors. Applicants expressly refused to assume *arguendo*, however, that any of these actions is or can be related in any way to activities under the nuclear licenses requested in these proceedings.

Proceeding from the assumptions *arguendo*, Applicants have set forth certain license conditions which include access to or participation in Davis-Besse 1 and Perry 1 and 2 for entities which heretofore have made a timely request for participation.

As precedent, Applicants rely largely upon the Commission's Memorandum and Order of September 28, 1973, in the Louisiana Power and Light Company proceeding (Waterford Steam Electric Generating Station, Unit 3) CLI-73-25, RAI-73-9-619. There the Commission directed licensing boards in antitrust proceedings to consider the question of whether sufficient nexus exists between the situations allegedly inconsistent with the antitrust laws and the activities

*Combined CAPCO-Company Territories.

under the license under consideration. In *Waterford,* the Commission observed that §105(c) of the Atomic Energy Act, 41 U.S.C. §2135, does not authorize an unlimited inquiry into all alleged anticompetitive practices in the utility industry. Section 105(c) is addressed to licensed activities and not the electric utility industry as a whole. The Commission noted, however, that the statute is not limited to the construction and operation of the facility to be licensed. Rather:

> The proper scope of antitrust review turns upon the circumstances of each case. The relationship of the specific facility to the Applicants' total system or power pool should be evaluated in every case.*

It was with that guidance in mind that this Board originally framed the issues in controversy in these proceedings. During the course of the argument, Applicants have contended that similarity of relief proposals in diverse antitrust proceedings indicates an intent on the part of the Boards (and the Commission) to deal with all antitrust proceedings generically, and without reference to the specifics of each individual situation (Tr. p. 1112-14). We disagree. Not only were the issues in controversy in these proceedings framed with specific reference to the allegations of the parties, but the Board has had in mind those limitations as it ruled upon the various discovery requests of the parties. Indeed, the Board rejected certain of these requests addressed to Applicants because the Board found that the documents or answers sought, while related to anticompetitive conduct generally, were overly remote from the instant proceeding.

Adhering to the Commission's guidance in *Waterford* that the relationship of the specific nuclear facility to the Applicants' total system or power pool should be evaluated in every case, we find ample nexus at this stage of the proceedings.† Allegedly, Applicants have combined to give each other the benefits of coordination, reserve sharing, and sale or exchange of power while denying those advantages to their competitors. The degree of competition among and between Applicants is not established, but it may develop that they are willing to offer these advantages only to entities which are not perceived as competitive threats to any one of them. Given the assumptions *arguendo* that Applicants' conduct has been directed toward the elimination of competitors, the propriety of wide-area pooling arrangements to which the Davis-Besse and Perry units will be important energy sources is an appropriate issue for further consideration by this Board.

**Waterford* at 621.

†We recognize that without Applicants' assumptions *arguendo, no* "situation" has been established. The burden of demonstrating a "situation" rests upon opposition parties at the hearing stage.

Applicants contend, however, that access to the nuclear facilities for which licenses herein are sought obviates other antitrust issues.* This is far from clear. The limited assumptions *arguendo* which Applicants offer appear, in part, to beg the question. On the other hand, Applicants will concede for purposes of argument that their multisystem activities are anticompetitive in nature and specifically directed to the elimination of competitors. On the other hand, they contend that nuclear units within this system, and in particular the Davis-Besse 1 and Perry units, would not contribute to the maintenance of the "situation" they have assumed, provided access to these units is granted. But these nuclear units do not exist in splendid isolation. Part of Applicants' announced purpose in the joint construction of these plants is to provide for system-wide needs. Applicants anticipate that the plants will be used to enable them to pool, to sell power to one another and to share reserves. These benefits of the specific nuclear plants under consideration may not be available to other electric entities even according to the stipulation offered by Applicants. Thus, the relationship between these plants and the assumed "situation" is discernible. Accordingly, the Board sees no current benefit in suspending progress toward an evidentiary hearing in order to conduct a separate hearing on Applicants' proposal.

III. RELIEF

Applicants also contend that even postulating the existence of a "situation", the Board should examine the relief offered in their proposal to determine if it so isolated the "activities" as to require termination of further proceedings. In effect, the other parties would be deprived of any opportunity to argue for modification of the proposed relief.

Justice and the other parties urge that the issue of nexus is not divisible, one part dealing with whether a "situation" inconsistent with the antitrust laws would be created or maintained, the other with whether a relief proposal is adequate to alleviate any "situation" found to exist. We agree that the nexus to which the Commission referred in its *Waterford* opinion is the connection between a "situation" inconsistent with the antitrust laws and "activities" under the license. If the Board determines that a "situation" exists which is related to the "activities", then the Board must proceed to the question of appropriate relief. Nexus already will have been established.† Arguments by the Staff,

*Tr. p. 1101. Applicants argued that by offering access "we are giving them [intervenors] everything that any other of us get from the nuclear plant." There appears to be an obvious nexus between this factual assertion and elements of the "situation" which would be covered by the assumptions *arguendo*.

†Of course, the relief must be reasonably related to the activities which affect the situation.

Justice and intervenors as to what constitutes appropriate relief should be considered by the Board in conjunction with any relief proposals submitted by Applicants.

IV. CONCLUSION

Opposition parties still face the not inconsiderable burden of proving their allegations relating both to the "situation" and to the "activities." However, we are not persuaded that Applicants' proposal offers a reasonable opportunity to foreshorten these proceedings. The basic assumptions *arguendo* insulating as they do any assumptions relating to the effect of operating the nuclear facilities for which license is sought from other system-wide activities creates an artificial demarcation.

Applicants' suggestion that even if a "situation" exists, the Board should consider only the specific relief which they assert will either (1) alleviate the "situation", or (2) separate the "situation" from the "activities" under the license, seems based on an incorrect premise. If the Board is satisfied that there is a nexus between the "situation" and the "activities", then the Board is required to fashion relief "with such conditions as it deems appropriate." 42 U.S.C. §2135(c)(6). In determining what constitutes appropriate relief, the Board cannot be bound by the terms of a particular proposal suggested by Applicants or, indeed, any other party or combination of parties. It is the *Board's* responsibility to determine what constitutes appropriate relief, and there is no statutory provision for delegation of that responsibility. Faced with a "situation" which affects "activities" under the license, the Board must be satisfied that any relief proposed by the parties is appropriate. *Louisiana Power and Light Company* (Waterford Unit No. 3), LBP-74-78, RAI-74-10-718, 719, 721-23 (October 24, 1974).

For the foregoing reasons, Applicants' proposal and motion is DENIED.

ATOMIC SAFETY AND
LICENSING BOARD

John H. Brebbia, Member

John M. Frysiak, Member

Douglas V. Rigler, Chairman

Issued this 30th day of June,
1975 at Bethesda, Maryland.

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