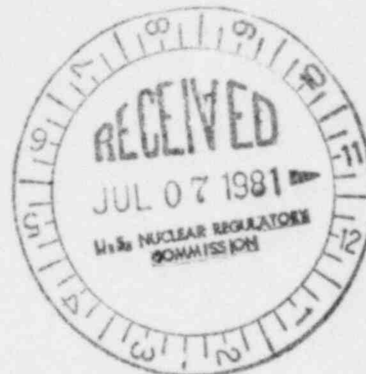
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	Docket No. 50-471
BOSTON EDISON COMPANY, ET AL.	)	
	)	
(Pilgrim Nuclear Generating Station, Unit 2)	)	

NRC STAFF BRIEF IN OPPOSITION TO INTERVENORS' EXCEPTIONS TO THE PARTIAL INITIAL DECISION



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July 6, 1981

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INTRODUCTION

On February 3, 1981, the Atomic Safety and Licensing Board (Licensing Board) issued its Partial Initial Decision, Findings of Fact and Conclusions of Law on All Matters Except Emergency Planning and TMI-2 Related Issues ("Partial Initial Decision" or "P.I.D."). All three Intervenors, the Commonwealth of Massachusetts (Commonwealth), the Massachusetts Wildlife Federation (MWF), and Mr. and Mrs. Alan Cleeton (Cleetons), filed exceptions. Briefs in support of the exceptions were filed by the Commonwealth and the Cleetons[1/] on May 19, 1981, and by MWF on May 21,

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1/ The Staff notes that Cleetons' brief fails to comply with the Commission's requirements for appellate briefs contained in 10 CFR § 2.762. Most seriously, Cleetons' brief does not specify "the precise portion of the record relied upon in support of the assertion of error." 10 CFR § 2.762(a). Also, although it exceeds 10 pages in length, it does not contain a table of contents. 10 CFR § 2.762(c). (Cleetons' failure to include "a table of cases...statutes, regulations, and other authorities cited" (§ 2.762(c)) is not a violation of § 2.762(c) since not one such authority is cited in their brief!) Notwithstanding these deficiencies, however, the Staff has attempted to address the merits of the Cleetons' Brief, although it could do so only with great difficulty due to the Cleetons' consistent failure to explain specifically

(Continued)

1981.[2/] The Applicants filed a brief in opposition to the Intervenors' exceptions on June 17, 1981. Pursuant to 10 CFR § 2.762(b), the NRC Staff hereby files its brief opposing the exceptions filed by the Intervenors. For the reason set forth below, the Staff believes that the Partial Initial Decision should be affirmed.

STATEMENT OF THE CASE

This proceeding was initiated on June 7, 1973, when, pursuant the section 103 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. §§ 2011 et seq., Boston Edison Company (BECo), on behalf of itself and other public utilities and municipal light departments or plants (Applicants),[3/] filed with the then Atomic Energy Commission ("Commission," predecessor to the Nuclear Regulatory Commission, also referred to herein as "Commission" or as "NRC") an application to construct an 1180 MWe

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1/ (Continued)

why they believe the record supports their assertion of error. As stated by the Appeal Board when it previously was presented with a similarly deficient brief:

> By neglecting to address their brief to the decision under review and by omitting adequate record citations, intervenors leave us (and the appellees) guessing about the precise nature of their arguments and ignorant of the evidence they rely on to support them.

Public Service Co. of Oklahoma (Black Fox Station, Units 1 and 2), ALAB-573, 10 NRC 775, 805 (1979), vacated in part, CLI-80-8, 11 NRC 433 (1980).

2/ On May 26, 1981, the Appeal Board granted MWF's motion for leave to file its brief two days late.

3/ "Applicants" hereinafter refers to the present Applicants which, as a result of application amendments, differ somewhat from the original applicants. The present applicants are listed in the P.I.D. at 5, fn.1.

pressurized water reactor designated as Pilgrim Unit 2,[4/] to be located on the western shore of Cape Cod Bay near Plymouth, Massachusetts, on site already occupied by another nuclear facility, Pilgrim Unit 1. After docketing the Pilgrim Unit 2 application on December 21, 1973, the Commission published in the Federal Register (39 Fed. Reg. 1786) on January 14, 1974, a Notice of Hearing to consider issues pursuant to the Act and the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321 et seq.

Timely petitions to intervene were filed by the Commonwealth of Massachusetts (Commonwealth), the Massachusetts Wildlife Federation (MWF), Alan and Marion Cleeton (Cleetons), and Daniel F. Ford (Ford). Pursuant to 10 CFR § 2.751a, a special prehearing conference was held on April 19, 1974, as a result of which the Licensing Board issued a Memorandum and Order dated May 30, 1974, admitting all four petitioners as intervening parties to the proceeding.

On July 15, 1974, the Plymouth County Nuclear Information Committee filed an untimely petition to intervene which was opposed both by the Applicants and the Staff. On August 30, 1974, the Licensing Board denied this untimely petition. The Appeal Board affirmed the denial in Boston Edison Co. (Pilgrim Nuclear Generating Station, Unit 2), ALAB-238, 8 AEC 656 (1974).

Following prehearing conferences held on July 15, October 3 and December 4, 1974, the Licensing Board issued a Memorandum and Order dated February 18, 1975, ruling on the parties' contentions. A summary of the admitted contentions and the disposition of those rejected appears in the Partial Initial Decision at 7 - 9.

4/ The original application also proposed a Unit 3 which was subsequently withdrawn for economic reasons.

On June 18, 1974, the Staff issued and sought comments to its Draft Environmental Statement (DES) for the proposed Units 2 and 3. After BECo. withdrew its proposal for Unit 3, the Staff, pursuant to the Licensing Board's August 9, 1974, Order, prepared and sought comments to the changes that would appear in the proposed Final Environmental Statement (FES). The Staff's FES was issued in September, 1974.

On June 27, 1975, the Staff issued its Safety Evaluation Report (SER). Supplement Nos. 1, 2, 3 and 4 were issued on November 3, 1975, January 27, 1976, August 31, 1976, and January 19, 1979, respectively. The Advisory Committee on Reactor Safeguards (ACRS) provided its reports to the Commission on November 14, 1975, and October 12, 1977.

Evidentiary hearings on the Pilgrim Unit 2 construction permit application began in Plymouth, Massachusetts on October 20, 1975. On October 13, 1976, Applicants requested a Limited Work Authorization (LWA) for Unit 2. Hearings were adjourned on July 1, 1977, after which the parties filed proposed findings of fact and conclusions of law on Applicants' LWA Request. On November 30, 1977, the Licensing Board denied the request due to an incomplete alternate site review, and the Appeal Board affirmed. Boston Edison Co. (Pilgrim Nuclear Generating Station, Unit 2), LBP-77-66, 6 NRC 839 (1977), aff'd, ALAB-479, 7 NRC 774 (1978).

Hearings resumed on March 6, 1978, and were concluded on August 28, 1979. Only emergency planning, which was deferred indefinitely at the request of the Staff for further review, and TMI-2 issues remain to be litigated. Evidentiary hearings on those issue are expected to commence in the fall.

STATEMENT OF ISSUES PRESENTED

The issues raised by the Intervenors' exceptions and briefs are as follows:

1. Whether the Licensing Board erred in not requiring a Class 9 accident consequence analysis for the proposed site.

2. Whether the Licensing Board erred in not allowing the litigation of the constitutionality and legality of 10 CFR Part 50, Appendix I.

3. Whether the Licensing Board erred in finding the proposed site suitable and in not finding an alternate site "obviously superior."

4. Whether the Licensing Board erred in its findings and conclusions concerning environmental matters.

ARGUMENT

I. THE LICENSING BOARD DID NOT ERR IN NOT REQUIRING A CLASS 9 ACCIDENT CONSEQUENCE ANALYSIS FOR THE PROPOSED SITE

The Commonwealth argues in its brief that the Licensing Board erred in finding the proposed site suitable because a Class 9 accident consequence analysis was not performed for the proposed site or its alternatives. The Commonwealth contends that the Commission's June 13, 1980, Statement of Interim Policy[5/] (Policy Statement) concerning Class 9 accidents requires a Class 9 accident analysis for Pilgrim Unit 2 for the following reasons: (1) The Policy Statement should apply to proposed plants whose final NEPA cost-benefit analysis has not been done even if an FES had been issued before the issuance of the June 13, 1980, Policy Statement; and (2) there are "special circumstances" which warrant a Class 9 accident analysis, namely, unique characteristics of the proposed site (population distribution, transportation, and evacuability) and a superficial and flawed demographic analysis (due to temporal weighting, dilution of average population by inclusion of water areas and ignoring sectoral concentrations, and the use of the "factor of two" in comparing alternate sites).

For the reasons explained below, the Staff notes at the outset that the Commonwealth did not properly raise the Class 9 issue with the Licensing Board below. Reaching the merits of the argument, however, the Staff asserts that (1) the absence of a final cost-benefit analysis does not require a Class 9 accident analysis since, according to the terms, meaning, and intent of the Commission's Policy Statement, Class 9 accidents

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5/ 45 Fed. Reg. 40101.

should be considered, absent special circumstances, only for proposed facilities whose FES per se had not been issued as of the June 13, 1980, date of the Policy Statement; and (2) there are no special circumstances due to unique characteristics of the proposed site. Before presenting the supporting arguments for the Staff's position on these matt rs, a brief summary of the background of the Statement of Interim Policy is appropriate.

On December 1, 1971, the (former) Atomic Energy Commission published a proposed Annex to Appendix D of 10 CFR Part 50 (Annex)[6/] which classified accidents at nuclear facilities according to a scale of severity and probability of occurrence, Class 1 being the most trivial and Class 9 being the most severe but also the most improbable. The Annex provided, inter alia, that although the consequences of a Class 9 accident could be severe, the probability of occurrence was so remote that its environmental risk was too low to be considered. Except for certain unique cases where special circumstances warranted Class 9 accident considerations, the Annex's guidance not to consider Class 9 accidents was followed[7/] until the Policy Statement was issued on June 13, 1980.

In the June 13, 1980, Statement of Interim Policy, the Commission withdrew the proposed Annex, abolished its classification of accidents,

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6/ The AEC requested and received public comment on the proposed Annex but neither the AEC nor the NRC took any further action on the proposed rule, except for promulgation in 1974 of 10 CFR Part 51, until it was withdrawn pursuant to the June 13, 1980, Statement of Interim Policy. Between December 1971 and June 1980 the guidance provided by the proposed Annex was generally followed. See Statement of Interim Policy, 45 Fed. Reg. 40101 (June 13, 1980).

7/ The Commission's practice of not considering Class 9 accidents was upheld in Carolina Environmental Study Group v. US, 510 F.2d 796 (D.C. Cir. 1975) and in Porter County Chapter of the Izaak Walton League v. AEC, 533 F.2d 1011 (7th Cir.), cert. denied, 429 U.S. 945 (1976).

and stated its policy that the Staff will thenceforth treat accident considerations in its NEPA review for any plant whose FES had not yet been issued. The Commission made it clear, however, that this change in policy was not to be construed as a basis for reopening or expanding any previous or ongoing proceedings unless there was a showing of the kind of "special circumstances" identified in the Policy Statement as prior instances of cases warranting the additional analysis. Those cases identified by the Commission are: (1) the Clinch River Breeder Reactor (a novel reactor design); (2) the early site review for Baltimore Gas and Electric Company's Perryman reactor (involving a high population density); and (3) the Offshore Power Systems' proceeding (involving floating nuclear plants with the potentially serious consequences associated with liquid pathways).[8/]

With the benefit of this background, we now address the Commonwealth's argument.

A. THE COMMONWEALTH DID NOT PROPERLY RAISE THE CLASS 9 ACCIDENT ISSUE WITH THE LICENSING BOARD

The Staff contends that the Class 9 accident issue, as framed by the Commonwealth in this appeal, was not raised with the Licensing Board and therefore should not be considered for the first time now on appeal. The record shows that the Commonwealth attempted to raise Class 9 accidents

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8/ A fourth type of special circumstance was identified by the Commission, prior to its Statement of Interim Policy, as "proximity to man-made or natural hazard." Public Service Co. of Oklahoma (Black Fox Station, Units 1 and 2), CLI-80-8, 11 NRC 433, 434 (1980).

during its cross-examination of Staff Witness Soffer on August 28, 1979, almost 1 year before the Commission's Policy Statement. Tr. 11,543. The Staff promptly objected on the ground that Commission policy (at that time) prohibited the Board from considering Class 9 accidents.[9/] Id. See also Tr. 11, 547-50. The Licensing Board sustained Staff's objection,[10/] Tr. 11,558, pointing out that there was no contention before the Board relating to Class 9 accidents per se. See Tr. 11,544-58. The Board rejected the Commonwealth's argument that its Contention 12 required an examination of Class 9 accidents. Id.

Commonwealth Contention 12 reads:

> Neither Applicants nor Staff have adequately considered the alternative of locating the proposed plant at a site more suitable from a population density and environmental standpoint.

Although the Licensing Board ruled that this contention does not on its face embrace Class 9 accidents, the Commonwealth does not now challenge that ruling. Rather, it argues now for the first time that the June 13, 1980, Policy Statement, issued almost a year after the hearing adjourned, requires consideration of Class 9 accidents for Pilgrim Unit 2.

The Commonwealth states that it has been its position throughout this case that the Staff should consider Class 9 accidents. Commonwealth's Brief at 11. But as pointed out above, the contention which the Commonwealth claimed called for Class 9 accident considerations was

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9/ See the cases cited in note 52 in Offshore Power Systems (Floating Nuclear Power Plants), ALAB-489, 8 NRC 194, 210 (1978).

10/ Licensing Board member Dr. Cole was explicit, stating "the Commission policy on environmental reviews of the Class 9 accident need not be considered in environmental reviews. I don't think there's any question about that." Tr. 11, 558.

found by the Licensing Board not to encompass Class 9 accidents. The fact is that the Commonwealth's position on appeal, namely that the Policy Statement requires Class 9 considerations, was not raised below. At no time did the Commonwealth move the Licensing Board to consider Class 9 accidents in light of the June 13, 1980, Policy Statement. The Commonwealth could have raised its Policy Statement argument with the Licensing Board since at the time that Policy Statement was issued on June 13, 1980, this proceeding was pending before the Licensing Board awaiting a Partial Initial Decision. Indeed, over seven months elapsed between the issuance of the Commission's Policy Statement and the Licensing Board's issuance of the Partial Initial Decision on February 3, 1981. Yet the Commonwealth did not move to reopen or raise in any other way its Policy Statement argument during that time, nor any time thereafter, with the Licensing Board. Instead, almost one year after the issuance of the Policy Statement, the Commonwealth raises the matter for the first time in its brief before the Appeal Board.

It is well settled that ordinarily a party may not raise an issue on appeal which was not raised below. Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-463, 7 NRC 341, 348 (1978). The Commonwealth's argument therefore should be rejected as improperly before the Appeal Board at this time. Recognizing, however, that the Appeal Board may consider matters for the first time on appeal when it believes that a serious substantive issue has been raised as to which a genuine problem has been demonstrated (id.) (which conditions the Staff does not concede are satisfied here), the Staff will now address the Commonwealth's specific arguments.

B. THE ABSENCE OF A FINAL COST-BENEFIT ANALYSIS DOES NOT REQUIRE A CLASS 9 ACCIDENT ANALYSIS SINCE THE FES FOR PILGRIM UNIT 2 WAS ISSUED BEFORE THE COMMISSION'S JUNE 13, 1980, STATEMENT OF INTERIM POLICY

The Final Environmental Statement (FES) for Pilgrim Unit 2 was issued by the Staff in September 1974, with a final supplement (FSFES) issued in May 1979. The Commonwealth argues, nevertheless, that even though the FES had been issued for Pilgrim Unit 2 before the Commission's June 13, 1980, Policy Statement, it is improper to preclude consideration of Class 9 accident consequences in this case because the final cost-benefit analysis has not been done by the Licensing Board. Commonwealth's Brief at 38-45. This argument, however, contradicts the clear language, meaning and intent of the Commission's Policy Statement.

The Commission's Statement of Interim Policy states, in relevant part:

> It is the intent of the Commission in issuing this Statement of Interim Policy that _the staff_ will initiate treatments of accident considerations, in accordance with the foregoing guidance, in its ongoing NEPA reviews, i.e., for any proceeding at a licensing stage _where a Final Environmental Impact Statement has not yet been issued_. . . . Thus, _this change in policy is not to be construed as any lack of confidence in conclusions regarding the environmental risks of accidents expressed in any previously issued Statements, nor, absent a showing of similar special circumstances, as a basis for opening, reopening, or expanding any previous or ongoing proceeding_.

Statement of Interim Policy (June 13, 1980), 45 Fed. Reg. 40101 _et seq_. (emphasis added). Therefore it is clear from the face of the Policy Statement that the new policy of considering what had been previously classified as Class 9 accidents applies _only_ to plants whose FES had not yet issued _unless_ there are special circumstances. The above language

cannot mean the new policy applies to plants whose final cost-benefit analysis had not yet been completed by the Licensing Board, since it is written in terms of "the staff" treating accident considerations unless the FES had not yet issued and, as the Commonwealth recognizes,[11/] in all cases it is the Licensing Board that strikes the final cost-benefit balance after Staff's issuance of and hearings on the FES, which is deemed modified to the extent that the Licensing Board's findings and conclusions differ from those in the FES. See 10 CFR § 51.52(b), (c). The Commission recognized that there were ongoing proceedings before licensing boards in which an FES previously had been issued by the Staff and explicitly provided that absent special circumstances, its new policy was not to be used as a basis for expanding any such proceedings.[12/]

The Commonwealth cites Silva v. Lynn, 482 F.2d 1282 (1st Cir. 1973), and Calvert Cliffs' Coordinating Committee, Inc. v. AEC, 449 F.2d 1109 (D.C. Cir. 1971) in arguing that the Commission has a duty to apply its "new" policy of considering "Class 9" accidents to ongoing proceedings like Pilgrim Unit 2. The Staff disagrees. First of all, as already pointed out above, if there is no dispute about the meaning and intent of the Policy Statement to not consider Class 9 accidents, absent certain special circumstances, when an FES has issued, then that Commission policy is applicable in this adjudicatory proceeding. Secondly, the

11/ Commonwealth's Brief at 43.

12/ The Staff does not understand the Commonwealth to actually challenge the Staff's reading of the Policy Statement. Rather, the Commonwealth argues that "the Commission's position [in the Policy Statement] is indefensible." Commonwealth's Brief at 39. As such, the Commonwealth argument is pressed in the wrong forum, since the Appeal Board would not appear authorized to modify the explicit terms of the Commission's Policy Statement.

teaching of Calvert Cliffs concerning the duty under NEPA to prepare a "detailed statement" which thoroughly address alternatives to the proposed action "to the fullest extent possible" was well known by this Commission when it promulgated its policy in 1971 of not considering Class 9 accidents. Both Calvert Cliffs and Silva were also known by the courts when they upheld that policy in Carolina Environmental Study Group v. US, 510 F.2d 796 (D.C. Cir. 1975) and in Porter County Chapter of the Izaak Walton League v. AEC, 533 F.2d 1011 (7th Cir.), cert. denied, 429 U.S. 945 (1976). In summary, the Staff believes that the Commission's policy of considering "Class 9" accidents in all future cases and the pending cases where an FES has issued only if there are special circumstances fully complies with its duty under NEPA as NEPA has been interpreted in both Silva v. Lynn and Calvert Cliffs, supra.

The Commonwealth contends that because the accident at Three Mile Island was a Class 9 event, earlier case law upholding the Staff's refusal to consider Class 9 accidents because of their small probability of occurrence is no longer controlling. Commonwealth's Brief at 14-15. But the Commission's current policy as set forth in the Policy Statement was issued after and in consideration of the Three Mile Island accident.[13/] That policy addresses plants like Pilgrim Unit 2 whose FES has been issued and, as shown above, clearly proscribes Class 9 considerations absent the special circumstances described in the Policy Statement.

13/ "The March 28, 1979 accident at Unit 2 of the Three Mile Island nuclear plant has emphasized the need for changes in NRC policies regarding the considerations to be given to serious accidents from an environmental as well as a safety point of view." Policy Statement (June 13, 1980), 45 Fed. Reg. 40101.

C. THERE ARE NO SPECIAL CIRCUMSTANCES WARRANTING A CLASS 9 ACCIDENT ANALYSIS DUE TO UNIQUE CHARACTERISTICS OF THE PROPOSED SITE

The Commonwealth argues that unique population distribution and land use characteristics around the proposed site constitute special circumstances warranting a Class 9 accident analysis within the meaning of the Commission's Policy Statement. Commonwealth's Brief at 36-38. Specifically, the Commonwealth argues that the high summertime population density in the area immediately surrounding the proposed site, as well as the congested road system and its configuration and attendant evacuability problems, qualify as special circumstances under the Commission's Interim Statement of Policy. Id. Since high population density might be a special circumstance under the Policy Statement warranting a Class 9 accident analysis, the validity of the Commonwealth's argument depends on the facts in the record of this case. The record does not support a finding of "special circumstances".

The Staff emphasizes at the outset that because the Class 9 accident issue, insofar as "special circumstances" are concerned, was not raised with the Licensing Board,[14/] none of the evidence in the record address the question of whether there are unique characteristics of the proposed site which constitute "special circumstances" under the Policy Statement warranting a Class 9 accident analysis. This means that to support its argument on appeal that there are special circumstances, the Commonwealth necessarily must rely on evidence in the record (claimed by the Commonwealth to be superficial and flawed) which is relevant to the

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14/ See Part IA of this Brief, supra.

Commission's reactor siting criteria in 10 CFR Part 100 and Staff's alternate site comparison. Without question, that evidence was not offered in the context of whether special circumstances required the consideration of Class 9 accidents in this proceeding and consequently is not necessarily relevant to the special circumstances issue. The Staff is therefore necessarily addressing an argument on one issue (special circumstances) by discussing the evidence on other, different issues (site suitability criteria of 10 CFR Part 100 and alternate site comparisons).

1. The population density surrounding the proposed site is not a "special circumstance" in this case

In determining whether there are special circumstances with respect to population density which warrant a "Class 9" accident analysis, the Staff has used Regulatory Guide 4.7 (General Site Suitability Criteria for Nuclear Power Stations) (Rev. 1, Nov. 1975). Regulatory Guide 4.7 provides that special attention should be given to alternative sites with lower population densities when the population density at the proposed site (including weighted transients) projected at the time of initial operation exceeds 500 persons per square mile averaged out to any radial distance of 30 miles or exceeds 1000 persons per square mile out to any radial distance of 30 miles over the lifetime of the facility. Regulatory Guide 4.7 at 4.7-9 (Rev. 1, 1975). As Staff Exhibit 66[15/] clearly shows, those "trip levels" are not exceeded in this case. Staff Exhibit 66, Tables 3 and 4. Specifically, Staff Exhibit 66 states, in relevant part:

15/ Received in evidence at Tr. 11,451.

> [W]e have incorporated the ERT seasonal resident values into our population data base.... [W]e find that the population densities are still well below the guideline values of Regulatory Guide 4.7 and, further, do not change our conclusion that none of the alternative sites have population densities significantly lower [than] the Rocky Point (i.e., Pilgrim) site.

Staff Exhibit 66 at unnumbered page 3. It follows that application of Reg. Guide 4.7 does not show there to be special circumstances in this case warranting a Class 9 accident analysis due to high population density.

The Commonwealth, however, challenges the Staff's use of the Regulatory Guide 4.7 "trip levels". Commonwealth's Brief at 23-24, 30-31. The Commonwealth argues that Regulatory Guide 4.7 is not a Commission-promulgated regulation and hence has no binding force. Id. at 30-31. Although the Commonwealth is correct on that score, this is not dispositive of the issue. The Staff has consistently used the Reg. Guide 4.7 "trip levels" as a screening guide for determining when high population density is a special circumstances under the Commission's Policy Statement warranting a Class 9 accident analysis, and this use has not met with Commission disapproval under the Commission's review of Director's Decisions under 10 CFR § 2.206(c)(1).[16/] Moreover, neither the Commonwealth nor anyone else offered any convincing reasons why the Staff should not rely on Reg. Guide 4.7. Therefore, application by the Staff of the Reg. Guide 4.7 trip levels in this case was appropriate.

16/ See, e.g., Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), DD-81-1, 13 NRC 45 (1981); Florida Power & Light Co. (St. Lucie Nuclear Power Plant, Unit 2), DD-80-33, 12 NRC 598 (1980); In the Matters of Arizona Public Service Co. (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), Pacific Gas & Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), and Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station, Unit 1), DD-80-22, 11 NRC 919 (1980).

2. There are no flaws in the Staff's demographic analysis

Another aspect of the Commonwealth's argument concerning special circumstances is its assertion that the Staff's demographic analysis is flawed and if that analysis had been done correctly, then the resulting high population density constitutes a special circumstance warranting a Class 9 accident analysis.17/ The Staff's position is that the evidence supports the soundness of the Staff's demographic analysis and that the average population density resulting from it does not constitute a special circumstance warranting Class 9 accident considerations.18/

The Commonwealth argues that the Staff ignored the transient population surrounding the proposed site in violation of the Appeal Board's admonition not to do so in Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-471, 7 NRC 477, 510 fn.63 (1978) and in Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-248, 8 AEC 957, 962 (1974).19/ Commonwealth's Brief

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17/ See Commonwealth's Brief at 17-36.

18/ While it is arguable, as the Commonwealth contends, (Commonwealth's Brief at 5-6, at 20, fn.8, and at 26, fn.11.) that the Partial Initial Decision inadequately addresses the Commonwealth's evidence on population matters, the preponderance of the evidence does not support the Commonwealth's position on the merits.

19/ The Seabrook case, which involved alternate site comparisons and not the issue of whether there existed special circumstances due to population density warranting a Class 9 accident analysis, was explicitly addressed by the Staff in the FSFES at 5-5, 6. The San Onofre case did not deal with "special circumstances" either; it addressed the need to protect transients, as well as permanent residents, in the "low population zone." San Onofre, supra, 8 AEC at 962. The low population zone for Pilgrim Unit 2 at the proposed site has a 2.3 mile radius. See P.I.D. ¶¶ 139-141. The Staff did consider transients in the low population zone in this case. See Tr. 11,475-82.

at 21-23. The record shows that the Staff did not "ignore" either daily or seasonal residents. Rather, as the Staff's rebuttal testimony explicitly shows, the Staff considered the transient population and weighted transients according to the fractional time, on an annual basis, that they could be expected to be present.[20/] Staff Witnesses Kantor and Soffer, at 4-5, bound following Tr. 11,707. See also FSFES at 4-2, 5-9, 10, B-1, 2. This temporal weighting method, also challenged by the Commonwealth (Commonwealth's Brief at 24-27), was explained to be a realistic way of assessing the risk of an accident on the population. Staff Witnesses Kantor and Soffer at 4, 7-11, bound following Tr. 11,707. (Cf. Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 51-52 (1977), appeal dismissed sub nom. New England Coalition on Nuclear Pollution v. NRC, 582 F.2d 87 (1st Cir. 1978) (temporal weighting of transients challenged but not decided).) The Commonwealth did not cross-examine Staff Witnesses Kantor and Soffer on their rebuttal testimony.[21/]

The Commonwealth also argues that the inclusion of water area in calculating average population density surrounding the proposed site improperly deflates that density (Commonwealth's Brief at 27-28). In response to this argument, the Staff, both in the FSFES and at the hearing, indicated quite clearly that this was its regular practice for coastal sites. FSFES at 5-10; Staff Witnesses Kantor and Soffer, supra, at 5. The Staff pointed out:

20/ The weighting of transients in this fashion is in accord with Regulatory Guide 4.7 at 4.7-9 (Rev. 1, Nov. 1975). The only transients within 2 miles of the proposed site that were not accorded any weight were those visitors whose stay was projected to be, on the average, between 15 and 30 minutes. Tr. 11,481-82. This also is in accord with Reg. Guide 4.7. Id.

21/ See Tr. 11,705.

> To use the land area in determining the population density in a alternate site review, as Professor Herr [the Commonwealth's witness] would have us do, would weigh against coastal sites in comparison with inland sites and discount a distinct advantage of coastal sites in that no people are at risk on one side of the site.

Staff Witnesses Kantor and Soffer, supra, at 5. Thus the Staff's treatment of the population density at the Pilgrim site vis-a-vis other sites near large water bodies does not show there to be special circumstances due to high population density. The Staff believes that this method is appropriate for coastal sites because there are no people at risk on one side of the site.

Another argument of the Commonwealth is that the Staff ignored significant population densities within certain radial sectors around the proposed site. Commonwealth's Brief at 29-30. The Staff employed the techniques of Regulatory Guide 4.7, averaging cumulative population over various radial distances from the proposed site to calculate the average population density for each such radial distance. During the hearing, in response to the Commonwealth's position that this technique did not properly assess the risk of accident, the Staff evidence refuted the Commonwealth's position by clearly showing that from a risk standpoint, this technique was correct. Staff Witnesses Kantor and Soffer, supra, at 7-11.

The Commonwealth argues that the Staff's FSFES and the Applicants' data on population in their Environmental Report (ER), are inaccurate in that they underestimate the actual population as shown in BECo's "ERT Study" submitted to the Staff just prior to the hearing on demography. Commonwealth's Brief at 19. The Commonwealth thereby implies that the Staff did not consider the more recent and presumably more accurate

population data. But in fact the ERT Study was considered by the Staff and the results were incorporated into Staff Exhibit 66[22/] which states, in relevant part, that "we [the Staff] have incorporated the ERT seasonal resident values into our population data base." Furthermore, Staff Witness Kantor specifically testified that the different population data resulting from the ERT Study was "not significant enough to change any of our conclusions in the FES." Tr. 11,449. See also Tr. 11,450, 11,509-11. There is therefore no significance to the Commonwealth's argument that BECo's "earlier submission understated certain categories of population" (Commonwealth's Brief at 19) and no merit to its implied argument that the Staff ignored the ERT Study.

In conclusion, the record[23/] on site suitability and alternate sites does not support the Commonwealth's argument that there are "special circumstances" due to unique characteristics of the proposed site to warrant a Class 9 accident analysis.[24/]

22/ Staff Exhibit 66, received in evidence at Tr. 11,451, effectively amended the Staff's FSFES. See Tr. 11,444-51.

23/ The Commonwealth also argues that the transportation characteristics and evacuability of the proposed site constitute "special circumstances." Commonwealth Brief at 37-38. Because there has not yet been a hearing on emergency planning issues, however, there is not yet a record on these matters. Furthermore, transportation and evacuation matters are not the type of "special circumstances" described in the Commission's Policy Statement. See p. 8, supra. To the extent that transportation and evacuation matters may relate to high population, the Staff has already pointed out that the population density surrounding the proposed site is not a special circumstance in this case. See Part IC1 of this Brief, surpa.

24/ The Commonwealth also challenges the Staff's use of the "factor of two" in comparing alternate sites. Commonwealth's Brief at 31-35. This matter essentially deals with alternate sites, not with whether there are special circumstances warranting a Class 9 accident analysis, and therefore will be addressed in Section III, infra.

II. THE LICENSING BOARD DID NOT ERR IN NOT ALLOWING THE LITIGATION OF THE CONSTITUTIONALITY AND LEGALITY OF 10 CFR PART 50, APPENDIX I, § II D, SINCE SUCH A CHALLENGE IS AN IMPERMISSIBLE ATTACK ON A COMMISSION REGULATION

MWF argues that section IID of Appendix I, 10 CFR Part 50, is unconstitutional and otherwise illegal[25/] on the following grounds:[26/]

(1) Section IID of Appendix I is based on an inadequate and incomplete rulemaking record in violation of due process and the Administrative Procedure Act, 5 U.S.C. §§ 551 et seq. MWF's Brief at 9, 22-28.

(2) The Commission lacks the authority to promulgate section IID because Congress has not and could not delegate any such authority; and, even if Congress could so delegate, it could

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25/ MWF concedes that the record demonstrates that the design of Pilgrim Unit 2 complies with Appendix I, § IID, as written and interpreted. MWF's Brief at 8, 13; MWF Exception 2; Exceptions by the Massachusetts Wildlife Federation in lieu of Requests for Findings of Fact and Conclusions of Law, filed November 30, 1979.

26/ MWF's challenge to Appendix I, § IID, emanates from i[illegible] original contentions 6 through 10. Pursuant to a Licensing Board Order of December 22, 1977, MWF filed on January 8, 1979, a "Memorandum on Massachusetts Wildlife Federation Legal Contentions and Facts Alleged in Support Thereof" raising the current challenge to Appendix I and abandoning all other aspects of contentions 6 - 10. The Staff responded to MWF's Memorandum on January 19, 1977, arguing that MWF's challenge to section IID of Appendix I is an attack on an NRC regulation which is prohibited by 10 CFR § 2.758. On July 14, 1978, the Licensing Board issued an Order ruling that MWF's challenge was prohibited by 10 CFR § 2.758 and announcing that th Board will aply section IID of Appendix I as it is written. MWF filed exceptions to that Order on November 30, 1979, and resumed its challenge in this appeal.

do so only along with specific statutory standards. MWF's Brief at 9, 16-19.

(3) In allowing applicants to show that a value less than $1000/man-rem may be appropriate in the cost-benefit analysis for radwaste augments, but not allowing intervenors to show that a value greater than $1000/man-rem may be appropriate, the Commission has masked adjudicative facts as legislative facts and MWF therefore is denied due process and its rights under the Administrative Procedure Act. MWF's Brief at 10, 20-22.

For the reasons explained below, the Staff contends that such a challenge to Appendix I cannot be brought in this adjudicatory proceeding.

"Appendix I is a binding Commission regulation..." Public Service Co. of Oklahoma (Black Fox Station, Units 1 and 2), ALAB-573, 10 NRC 775, 787 (1979), vacated on other grounds, CLI-80-8, 11 NRC 433 (1980). As it clearly states, a design conforming to Appendix I "shall be deemed a conclusive showing of compliance" with the ALARA requirement of 10 CFR § 50.34a. Id. (emphasis added). It follows that the Licensing Board is bound to apply the Appendix I, § IID, cost-benefit standard as it is written.27/

27/ Cf. Public Service Co. of Oklahoma (Black Fox Station, Units 1 and 2), CLI-80-31, 12 NRC 264 (1980), wherein the Commission held that, notwithstanding compliance with the ALARA design objectives of Appendix I, § IID, the health effects of routine radioactive emissions on the NEPA cost-benefit analysis can be litigated in individual licensing proceedings. Id. at 266, 276. The Licensing Board in this case fully complied with the Commission's Black Fox holding. See P.I.D. ¶¶ 265-290, especially ¶¶ 274-286. See also P.I.D. ¶ 397. No challenge to that compliance has been made in this case.

Since Appendix I is a binding regulation, MWF's attack[28/] on the legality of section IID of Appendix I is not litigable in this construction permit adjudicatory proceeding. Section 2.758(a) of the Commission's Rules of Practice provides, in pertinent part:

> [A]ny rule or regulation of the Commission, or any provision thereof, in its program for the licensing and regulation of production and utilization facilities... shall not be subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding involving initial licensing subject to this subpart...[29/]

Subsequent sections of this regulation, however, do provide mechanisms for parties to seek either a waiver or exception to specific rules or a rulemaking proceeding.[30/] MWF did not request a waiver, exception, or

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28/ MWF's position is summarized in its Brief as follows:

> [T]he MWF feels itself obliged, notwithstanding its limited resources, to carry foward its appeal on the issue of the "dollar valuation of human life and health" presented. The MWF feels that this regulation is ethically and morally repugnant, and moreover, serves no useful purpose in nuclear station licensing; nuclear power generating stations could be designed and licensed without it, as is shown by the design of Unit #2 prior to the promulgation of this regulation.

MWF's Brief at 5 (emphasis in original).

29/ See Metropolitan Edison Co. (Three Mile Island Nuclear Station Unit 2), ALAB-456, 7 NRC 63, 65 (1978); Pacific Gas & Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-410, 5 NRC 1398, 1402 (1977); Potomac Electric Power Co. (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 89 (1974).

30/ Section 2.758(b) provides that a party to an initial licensing adjudicatory proceeding may petition that the application of a specific rule be waived or an exception made for the particular proceeding based on the sole ground that special circumstances are such that application of the rule would not serve the purposes for which it was adopted. Section 2.758(c) governs the Licensing Board's denial of such a petition to waive or except. Section 2.758(d) requires the Licensing Board, before granting such a petition to waive or except, to certify the petition directly to the Commission for determination of the matter. Section 2.758(e) permits parties to initial licensing proceedings to petition for rulemaking pursuant to section 2.802.

rulemaking proceeding, but rather attempted to attack directly section IID before the Licensing Board. In light of the clear prohibition by 10 CFR § 2.758(a) against such an attack, the Licensing Board correctly ruled that it was not within its power to refuse to apply section IID of Appendix I as it is written.[31] The Commission's rule against direct attacks on its regulations in licensing proceedings was approved by the Court of Appeals for the District of Columbia Circuit in a case involving Pilgrim Unit 1. Union of Concerned Scientists v. AEC, 499 F.2d 1069 (D.C. Cir. 1974).[32] It follows that the Licensing Board was correct as a matter of law in not entertaining on its merits MWF's legal challenge to Appendix I.[33]

31/ Order dated July 14, 1978.

32/ In that case the Union of Concerned Scientists (UCS) attempted to challenge the Commission's Interim Acceptance Criteria for emergency core cooling systems. The Licensing Board ruled that the challenge was a direct attack on a Commission regulation and could not be considered in the adjudicatory licensing proceeding. The UCS challenged the ruling in the U.S. Court of Appeals for the District of Columbia Circuit, arguing, inter alia, that the Commission denied UCS due process. 499 F.2d at 1080. The Court of Appeals rejected UCS's due process argument, holding that an agency can require challenges to its standards to be brought in rulemaking proceedings rather than allowing them in individual adjudications. Id. at 1081. The Court specifically upheld the authority of this Commission to prohibit Licensing Board's from entertaining in licensing proceedings challenges on the merits to Commission regulations. Id. at 1090. See also id. at 1088.

33/ MWF makes two other arguments concerning Appendix I. First, MWF argues that the Licensing Board erred in making findings concerning maximum expenditure for radwaste system augments "only according to the 'man-rem' criterion of Appendix I, § IID, and not also according to the 'man-thyroid-rem' criterion also required by said § IID." MWF Exception 6, citing P.I.D. ¶ 125, final sentence. This alleged error

(Continued)

III. THE LICENSING BOARD DID NOT ERR IN FINDING THE PROPOSED SITE SUITABLE AND IN NOT FINDING AN ALTERNATE SITE "OBVIOUSLY SUPERIOR"

The Commonwealth and the Cleetons claim the Licensing Board erred in finding the proposed site suitable from geographic and population viewpoints.

33/ (Continued)

is based s ly on MWF's misreading of the Partial Initial Decision; the Licensing Board did in fact make findings based on both the man-rem and man-thyroid-rem criteria of § IID.

The Licensing Board found in P.I.D. ¶ 125 that the design of Pilgrim Unit 2 complies with Appendix I. Specifically, the Board found that for liquid effluents, the total body population dose would be less than 1 man-rem and the thyroid dose would be less than 1 man-thyroid-rem. For gaseous effluents, the Board found the total body population dose to be 1.8 man-rem and the thyroid dose to be 3.4 man-thyroid-rem. The Licensing Board then concluded (in the final sentence of P.I.D. ¶ 125, alleged by MWF to be error) that the maximum expenditure for radwaste system augments that could be required of Applicants to reduce the radioactive discharges to 0 is $1000 for liquid effluents and $3400 for gaseous effluents. The $1000 figure for liquids is based on the fact that both the total body dose and the thyroid dose are less than 1 man-rem and man-thyroid-rem, respectively, to which is applied the § IID $1000/man-rem and $1000/man-thyroid-rem standards. The $3400 figure for gases, however, is based on the 3.4 man-thyroid-rem dose (being the greater of 1.8 and 3.4), to which is applied the $1000/man-thyroid-rem standard of § IID. This $3400 figure is derived directly from the man-thyroid-rem criterion of § IID of Appendix I and is precisely what MWF claims the Licensing Board failed to do.

When paragraph 125 of the Partial Initial Decision is read as a whole, it is clear that the Licensing Board did not fail to apply both the man-rem and man-thyroid-rem criteria of Appendix I, § IID.

MWF's other argument challenges the propriety and results of the Licensing Board's comparison in the Partial Initial Decision (P.I.D. ¶ 282) of the Applicants' and Staff's numerical data on gaseous effluents. The thrust of MWF's argument is that because the Staff's data accounted for March 1977 design changes in Applicants' radwaste system but the Applicants' data used in the comparison did not, the comparison and the results thereof were meaningless and the Board therefore erred in making such a comparison. See Tr. 7787-7804. The

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Commonwealth's Brief at 1; Cleetons' Brief at 8-9.[34/] The Commonwealth also claims that the Licensing Board erred in concluding that the population density in the area of the proposed site is within the Commission guidelines

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33/ (Continued)

Licensing Board acknowledged that "this comparison may not be strictly proper." P.I.D. ¶ 282, fn.97.

The Staff agrees with MWF that it was error to compare Staff's gaseous effluent values based on the March 1977 design of Applicants' radwaste system with Applicants' values which were based on the pre-March 1977 radwaste system. We further believe, however, that this error was harmless.

First of all, it is undisputed, even by MWF, (see note 25, supra) that the design of Pilgrim Unit 2 complies with the Commission's radwaste requirements of 10 CFR Part 50, Appendix I. Both the Applicants' values and the Staff's (higher) values comply with Appendix I standards. P.I.D. ¶ 283. It follows that the erroneous comparison was unnecessary and can be stricken from the Partial Initial Decision without affecting the adequacy of the record, including the Partial Initial Decision, to support the issuance of a construction permit (assuming all other requirements are satisfied).

Secondly, a detailed examination of the evidence establishes that the Staff's analysis of the projected gaseous effluents is entirely independent of the erroneous comparison. The record shows the following: The Staff performed an independent analysis based on the March 1977 design of hardware modifications, not based on Applicants' values. Tr. 7672; see also Tr. 7798. The Staff's analysis was a "worst case" analysis, assuming continuous purging and not just four purges per year as Applicant assumed. Tr. 7679-80. This "worst case" continuous purging was assumed even though actual purging would probably yield the smaller values based on the pre-March 1977 design. Tr. 7756-57. Staff's "worst case" analysis yields values higher than Applicants'. Tr. 7766. When Applicants recalculated their gaseous effluent values based on the design modifications, their values were comparable to the Staff's. Tr. 7808-09, 7813. It follows that the error in comparing Staff's values with Applicants' was harmless.

34/ Cleetons' two-sentence argument is that the population in the area has doubled in the last five years, continues to increase rapidly, and is doubled during the summer by thousands of day visitors, making the proposed site unsuitable for any nuclear plant. The Cleetons do not discuss or even mention the record.

and in concluding that the population density is not cause, by itself, for selecting another site.[35/] Commonwealth's Brief at 1. The Staff's position is that the Board's findings and conclusions on site suitability and alternate sites from geographic and population viewpoints (see P.I.D. ¶¶ 127-141, 344-353, 396-397) are supported by a preponderance of the evidence. With respect to the Commonwealth's specific arguments, most of them were addressed by the Staff in Section IC, supra, and will not be repeated here.

The Commonwealth's challenge to the Staff's methodology concerning population density was specifically the subject of rebuttal testimony by Staff Witnesses Kantor and Soffer,[36/] which addressed, inter alia, the Staff's treatment of daily and seasonal transients, water area, and sectoral populations. As made clear in that testimony, the Staff's methodology was reasonably designed to address the risk of an accident on the population, not the consequences of an accident. As these witnesses explained, it is the risk, not the consequence, of an accident which is the relevant inquiry for site suitability and alternate site purposes. As they also explained, the Commonwealth's attack on the Staff's methodology, however, addressed the consequences of accidents which is relevant to the yet-to-be litigated issues associated with emergency planning. See the

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35/ All of the Commonwealth's arguments concerning geography and population were made in connection with their position that a Class 9 accident analysis should have been performed for Pilgrim Unit 2. See Commonwealth's Brief at 7-45.

36/ Bound following Tr. 11,707. Many of the Commonwealth's specific arguments were originally presented by it as comments on the Staff's Draft Supplement to the FES. See FSFES, Appendix A. These comments were addressed by the Staff in the FSFES at 5-1-11.

rebuttal testimony of Staff Witnesses Kantor and Soffer, bound following Tr. 11,707, at 3-11. The Commonwealth chose not to cross-examine Staff Witnesses Kantor and Soffer on their rebuttal to the Commonwealth's attack on the Staff's population methodology. Tr. 11,705.

The only argument concerning the Commonwealth which has not been addressed by the Staff in Section IC, supra, is that related to the Staff's use of the "factor of two."[37/] Commonwealth's Brief at 31-35.

In determining whether there was a significant difference in population between the proposed site and alternative sites, the Staff required an alternative site to have a population density out to 30 miles at least a factor of two lower than the proposed site before the difference would be considered "significant."[38/] FSFES at B-1, 2. As explained by the Staff both in the FSFES and at the hearing, the risk associated with an accident at a particular site is dependent not only on population density, but on other factors as well. FSFES at B-1; Tr. 11,560-61. See Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-471, 7 NRC 477, 510 (1978). Furthermore, the Staff's studies indicate that relatively large differences in population are required before significant differences in the risk can be expected. FSFES at

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37/ See note 24, supra.

38/ The Commonwealth argues that even using this standard, the Montague site should be considered preferable from a population point of view. Commonwealth's Brief at 33-35. That argument, however, is based on the Commonwealth's selective comparison of some of the population distribution data for the proposed site and the Montague site. A comparison of all the population distribution data for the proposed site (Staff Exhibit 66, Tables 3 and 4) with the corresponding data for the Montague site (FSFES at 4-48) refutes that argument.

5-10, B-1. It therefore was not unreasonable to use the "factor of two" in comparing population density characteristics of the proposed site with alternative sites.[39/]

39/ In addition to the site-related challenges by the Commonwealth and the Cleetons concerning population, the Cleetons also claim the Board erred in finding the proposed site suitable from hydrologic, geologic, and seismic viewpoints (Cleetons' Brief at 9) and in concluding that the probability of an aircraft impact on vulnerable portions of the site is so small as to be not credible (Cleetons' Brief at 10).

The factors which are to be considered when evaluating the acceptability of a site for a nuclear power plant include its hydrologic, geologic, and seismic characteristics. 10 CFR § 100.10(c). Specific seismic and geologic siting criteria are provided in 10 CFR Part 100, Appendix A. Pursuant to these regulations, (see P.I.D. ¶¶ 152-158; 163-178), the Licensing Board found the proposed site to be suitable from hydrologic, geologic and seismic viewpoints. P.I.D ¶ 397. The Cleetons challenge this Licensing Board finding, arguing that in a world where there are earthquakes whose effects are felt large distances away, "there is no safe place for nuclear fission operations, particularly in Plymouth, an area known to be in a high earthquake zone." Cleetons' Brief at 9.

Applicants' burden concerning the suitability of their proposed site from geologic and seismic viewpoints is to demonstrate a reasonable assurance of safety. 10 CFR § 100.10(c)(1). See Virginia Electric Power Co. (North Anna Power Station, Units 1, 2, 3 and 4), ALAB-256, 1 NRC 10, 16-17 (1975). Because detailed Commission seismic and geologic siting criteria are provided in 10 CFR Part 100, Appendix A, the Licensing Board's responsibility is simply to apply those criteria to the facts presented. North Anna, supra, ALAB-256, 1 NRC at 13. The Licensing Board correctly applied those criteria to the evidence and correctly found the proposed site acceptable from seismic, geologic and hydrologic standpoints. (Cleetons do not address hydrology or geology per se in their Brief, but limit their argument to seismic considerations. See Cleetons Brief at 9.) The Board's evaluation explicitly included the only aspect of Cleetons' argument which is in any way related to the record below, namely, their mention of the Cape Ann earthquake of 1755. (The Cape Ann earthquake and its relation to the Indian Point nuclear facility is discussed in Consolidated Edison Co. of New York (Indian Point, Units 1, 2 and 3), ALAB-436, 6 NRC 547 (1977).) P.I.D. ¶¶ 165-169,

(Continued)

The Commonwealth argues that because the Licensing Board has not yet held a hearing on emergency planning, including two contentions by the Commonwealth related to emergency planning, one of which challenges the feasibility of developing any emergency plan at the proposed site,[40/] the Licensing Board's conclusion regarding the suitability of the proposed

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39/ (Continued)

177-178. The Cleetons have not challenged the Board's specific findings or conclusions regarding the Cape Ann earthquake.

With respect to the probability of an aircraft impact on the Pilgrim Unit 2 site (P.I.D. ¶¶ 144-151), the Licensing Board analyzed the evidence and concluded that the probability was so small as not to be credible. The Cleetons except to this conclusion, arguing that the incredible happens much too often. Cleetons cite such "incredible" events as sink holes in Florida, a 50 foot wave of molasses in Boston, and a disappearing lake in Louisiana. Cleetons' Brief at 10-13. But not once do the Cleetons cite the record in support of their argument. The Licensing Board's conclusion on aircraft impact probability is supported by a preponderance of the evidence in the record and in accordance with relevant standards. The Staff submits that the Licensing Board weighed all the evidence, including the testimony elicited by Cleetons' cross-examination of Applicants' witnesses (see Tr. 4579-4614) and Staff's witness (see Tr. 4656-69), discussed it thoroughly in its Partial Initial Decision (P.I.D. ¶¶ 144-151), and correctly decided the issue (P.I.D. ¶ 399) according to a preponderance of the evidence.

40/ That contention reads as follows:

> Given the population densities, transportation network, land use and other unique characteristics of the area surrounding the proposed Pilgrim 2 site, no emergency plan can be developed that will adequately protect the public in the event of a major radiological accident.

The other contention relates to compliance with 10 CFR Part 50, Appendix E, and is quoted, along with the history of the Licensing Board's acceptance of these contentions, in Commonwealth's Brief at 4, fn.3.

site is premature and erroneous. Commonwealth's Brief at 45-46. The defect in the Commonwealth's assertion of error is the simple fact that the Licensing Board did not make a final conclusion on site suitability. Rather, the Licensing Board found the proposed site suitable subject to the resolution of outstanding issues on emergency planning,[41/] which were deffered at the request of the Staff for further review. See P.I.D. ¶ 16. While the Partial Initial Decision is not explicit on this conditional finding, the Staff believes that it should be read in light of the relevant precedents which make it clear that the acceptability of a site with respect to 10 CFR Part 100 includes the requirement that the applicant has established (at the construction permit stage of the proceeding) the feasibility of developing an appropriate emergency plan for the "low population zone". Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-390, 5 NRC 733, 745 (1977); Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3),

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41/ The Licensing Board concluded, in accordance with 10 CFR § 50.35(a), that

> "taking into consideration the site criteria contained in 10 CFR Part 100, the proposed facility can be constructed and operated at Rocky Point without undue risk to the health and safety of the public."

P.I.D. ¶ 418(1)(d)(ii). This conclusion is based on the Board's specific findings of fact concerning site suitability. See P.I.D. ¶¶ 127-178.

The Board then went on to rule that a construction permit should be issued subject to certain conditions and "subject to the favorable completion of hearings on emergency planning and Three Mile Island 2 related issues." P.I.D. ¶ 420.

ALAB-248, 8 AEC 957, 961 (1974). As so read,[42] the Licensing Board committed no error.[43]

42/ The Staff recognizes that the Partial Intial Decision concerning site sutability can be read in such a way as to allow one to conclude that the Licensing Board found the proposed site suitable regardless of the resolution of the Commonwealth's contention that no adequate emergency plan is feasible. In that case, the Licensing Board would have erred, but only harmlessly, since its Partial Initial Decision does not authorize a construction permit or limited work authorization and there is still the opportunity for the Licensing Board to reevaluate its conclusion on site suitability in light of the additional relevant evidence to be adduced at the upcoming hearings. If the Appeal Board chooses this interpretation, it can remand this issue to the Licensing Board with instructions to reconsider site suitability after the emergency planning hearings in light of the requirement of a showing by the applicant of the feasibility of developing an emergency plan. Or, the Appeal Board can adopt the Staff's interpretation. In either case, it will be clear that the Licensing Board does have a duty to consider the effect on site suitability of the feasibility of developing an adequate emergency plan. The Staff believes the latter course is preferable.

43/ The Commonwealth (but no other appellant) also originally took exception to the Licensing Board's conclusion on the adequacy of Staff's alternate site analysis and the absence of an obviously superior site. Commonwealth Exception No. 3. But in its brief, the Commonwealth explicitly abandoned that exception. Commonwealth's Brief at 1. Notwithstanding that explicit abandonment, however, the Commonwealth's argument addresses alternative sites. See Commonwealth's Brief at 11 (concerning Class 9 accident analysis "at the proposed site and its alternates") and at 31-35 (concerning the "factor of two").

Pursuant to section 102(2)(A),(C) and (E) of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321 et seq., and the Commission's regulations, 10 CFR § 51.52(c), the Licensing Board considered whether there were reasonable alternatives to the proposed site which would be less harmful to the environment. P.I.D. ¶¶ 344-353, 396-397. That consideration involved applying the Commission's "obivously superior" test set forth in Public Service Co. of New Hampshire (Seabrook Station, Unit's 1 and 2), CLI-77-8, 5 NRC 503 (1977). P.I.D. ¶ 345. The Commission there held that "the test to be employed in assessing whether a proposed site is to be rejected [is]...whether an alternate site is obviously superior to the site which the applicant has proposed." Seabrook, supra, CLI-77-8, 5 NRC at 526. For an alternate site to be "obviously superior" it must be "clearly and substantially" superior. Rochester Gas & Electric Corp.

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In considering this interpretation of the Licensing Board's site suitability conclusion, the case of Potomac Electric Power Co. (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-277, 1 NRC 539 (1975), should be considered. In Douglas Point the Appeal Board addressed the question, referred to it by the Licensing Board, of whether hearings on, inter alia, site suitability should proceed notwithstanding the applicant's postponement for several years of construction and operation of the faci' . The Appeal Board held that there were no legal impediments to the early hearings (id. at 544-47) provided 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."44/ Id. at 545. Regarding the natural reluctance of decision makers to change

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43/ (Continued)

(Sterling Power Project, Nuclear Unit No. 1), ALAB-502, 8 NRC 383, 397, (1978), aff'd, CLI-80-23, 11 NRC 731 (1980).

A review of the record demonstrates that the Licensing Board did not err in concluding that the Staff's analysis of alternate sites was adequate and that none of the considered alternatives is obviously superior to the proposed site. Rather, the record overwhelmingly demonstrates that the Staff exhaustively considered (i.e., took a "hard look" at) the environmental effects of each of the many reasonable alternative sites and thereby provides the basis for this Commission's compliance with NEPA. See Boston Edison Co. (Pilgrim Nuclear Generating Station, Unit 2), ALAB-479, 7 NRC 774, 779 (1978), citing Kleppe v. Sierra Club, 427 U.S. 390, 410 fn.21 (1976).

44/ It appeared to the Appeal Board that there were good reasons to proceed early on many of the site-related issues. Douglas Point, supra, at 547. In particular, the Appeal Board pointed out that many aspects of the site suitability criteria of 10 CFR Part 100, such as seismology, meteorology, geology, and hydrology, essentially do not vary over short times. Id. at 548.

preliminary conclusions, the Appeal Board expressed its confidence "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 [proposed] site should be authorized." Id. at 552.

IV. THE LICENSING BOARD DID NOT ERR IN ITS FINDINGS AND CONCLUSIONS CONCERNING ENVIRONMENTAL MATTERS

A. Need for power

The Licensing Board concluded based on the evidentiary record that Pilgrim Unit 2 is needed to meet the New England region's positive growth rate in electrical requirements. P.I.D. ¶ 387. The Board further stated its opinion that Pilgrim Unit 2 is justified solely on the basis of its substitution of nuclear fuel for oil ("substitution theory"). Id.

Intervenor-Cleetons challenge this conclusion and argue that Pilgrim Unit 2 is not needed "urgently" because BECo has reserved the right to cancel it in the future[45/] and recently has diversified into the fields of "coal extraction and use and oil and gas exploration."[46/] Cleetons further

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45/ Cleetons quote from page 13 of BECo's latest annual report (1980), attached to Cleetons' Brief as Exhibit A, a complete copy of which was sent by Counsel for BECo to all parties and the Licensing and Appeal Boards on April 30, 1981.

46/ Cleetons' Brief at 7. Cleetons claim that this diversification was announced by BECo on February 24, 1981, and contradicts BECo's testimony "that nuclear fission is the only viable alternative for the company." Id. Accepting arguendo Cleetons' characterization of BECo's testimony, the Staff sees no contracdiction as far as the asserted need for the Pilgrim Unit 2 nuclear facility is concerned.

argue, once again without citing any supporting evidence, that "[i]f we stop wasting power, there will be no need for additional power." Cleetons Brief at 8. Cleetons however make no connection between these assertions and any aspect of the evidentiary record supporting the Board's conclusions concerning the need for Pilgrim Unit 2 facility. The Staff believes that the Licensing Board's conclusions on the "need for power" issue are supported by the record and, for the reasons set forth below, in accordance with well-established Commission law.

The need for the power from a nuclear unit is the primary benefit obtained from its construction and operation as far as the NEPA cost-benefit analysis is concerned. Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 90 (1977), citing Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 405 (1976). Since electric energy demand projections involve predicting the future,[47/] they are necessarily uncertain, and electric utilities, which have a legal obligation to meet the electricity needs of its customers, are therefore fully justified in being conservative in planning generating additions. Catawba, supra, ALAB-355, 4 NRC at 410; Niagra Mohawk Power Corp. (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 365-66 (1975). This is especially true because the consequences of under-estimating demand are far more serious than the consequences of over-estimating demand. Catawba, supra, ALAB-355, 4 NRC

47/ They have been described as involving "at least as much art as science." Kansas Gas & Electric Co. (Wolf Creek Generating Station, Unit No. 1) ALAB-462, 7 NRC 320, 328 (1978), quoting Nine Mile Point, supra, ALAB-264, 1 NRC at 365 (footnote omitted).

at 410. Furthermore, if the power from the proposed generating unit is needed, the benefits are "immeasureable". Nine Mile Point, supra, ALAB-264, 1 NRC at 368; quoting Vermont Yankee Nuclear Power Corp. (Vermont Yankee Power Station), ALAB-179, 7 AEC 159, 173 (1974). These principles have given rise to the applicable standard to be used in deciding the need for power issue, namely, a need for the power from a proposed nuclear unit is demonstrated when the weight of the evidence establishes a forecast of future need which is reasonable at the time made. Kansas Gas & Electric Co. (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 328 (1978); Catawba, supra, ALAB-355, 4 NRC at 411; Nine Mile Point, supra, ALAB-264, 1 NRC at 367.

With these principles in mind, it is clear that the record supports the Board's conclusion that Pilgrim Unit 2 is needed. The Staff submits that the Partial Initial Decision fairly and extensively addresses the relevant evidence on the need for power issue (see P.I.D. ¶¶ 180-230) and concludes in accordance with the preponderance of the evidence that Pilgrim Unit 2 is needed (P.I.D. ¶ 387).[48/] In addition, the Licensing

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48/ The Cleetons also claim that the Licensing Board erred in concluding that at present there are no viable alternative energy sources. The Cleetons, the sole appellant on the issue of alternate energy sources, offered no evidence to support their contention of inadequate consideration of alternate sources of power, although they did cross-examine Applicants' and Staff's witnesses. P.I.D. ¶ 395. Cleetons offered no argument in support of this exception except to incorporate by reference their argument on the need for power issue. See Cleetons' Brief at 8. The Staff has addressed that argument, supra.

The Licensing Board heard and considered extensively in its Partial Initial Decision evidence on many alternative sources of energy,

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Board stated its opinion that the substitution theory alone justified the Pilgrim Unit 2 facility. P.I.D. ¶ 387. This was based on the testimony of the Massachusetts Governor's Office of Energy Resourses.[49/] The Governor's Office presented testimony on the need for power issue,

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48/ (Continued)

including coal (P.I.D. ¶¶ 307-329), coal gasification (P.I.D. ¶ 331), solar (P.I.D. ¶¶ 332-335), wind (P.I.D. ¶ 336), ocean-thermal (P.I.D. ¶ 337), solid wastes (P.I.D. ¶¶ 338-341), pyrolysis and hydrogenation (conversion of garbage and animal waste into oil), anaerobic digestion (conversion of garbage into methane) (P.I.D. ¶ 342), and geothermal (P.I.D. ¶ 343). For the reasons thoroughly explained in its Partial Initial Decision, the Licensing Board found none of these alternatives viable. P.I.D. ¶¶ 305-343, 394-395. These findings are supported by the preponderance of the evidence and therefore should be affirmed. See Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B), ALAB-367, 5 NRC 92, 102-105 (1977).

49/ By petition dated May 23, 1979, the Massachusetts Governor's Office of Energy Resources petitioned the Licensing Board for leave to participate in this proceeding as an interested state agency on the need for power issue. Intervenor - Cleetons opposed the petition on the ground that the petition was untimely and did not satisfy the Commission's intervention standards set forth in 10 CFR § 2.714. By Order dated June 7, 1979, the Licensing Board granted the petition, ruling that the Governor's Office could participate, pursuant to 10 CFR § 2.715(c), as an interested state agency on the need for power issue. The Licensing Board held that the lateness criteria and other standards in section 2.714 for intervention did not govern petitions by state agencies to participate pursuant to section 2.715.

Intervenor-Cleetons claim that the Licensing Board erred in allowing the Governor's office to present its "substitution" theory evidence on the need for power issue. Cleetons argue that since the Licensing Board denied the untimely petition to intervene filed on July 15, 1974, by the Plymouth County Nuclear Information Committee, Inc. (PCNIC), it was inconsistent to allow the Governor's Office of Energy Resources to present testimony on the need for power issue. The Licensing Board's denial of PCNIC's petition, however, was affirmed by the Appeal Board. Boston Edison Co. (Pilgrim Nuclear Generating Station, Unit 2), LBP-74-63, 8 AEC 330 (1974), aff'd, ALAB-238, 8 AEC 656 (1974). Absent a relation between the Licensing Board's rulings on PCNIC and the Governor's Office not even suggested by

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confining itself, however, to the "substitution" theory justification for Pilgrim Unit 2; i.e., Pilgrim Unit 2 is justified based on the amount of oil that could be saved or used for other purposes if a nuclear plant is substituted for existing or potential oil-fired generators. See generally the testimony of Governor's Witnesses Buckley and Patrick, bound following Tr. 10,947. The "substitution" theory has been accepted as the sole justification for the need for the Seabrook nuclear facility (like Pilgrim Unit 2, to become part of the New England Power Pool (NEPOOL) capacity). Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 95-99 (1977), appeal dismissed sub nom. New England Coalition on Nuclear Pollution v. NRC, 582 F.2d 87 (1st Cir. 1978). Other cases discussing with approval the substitution theory are Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397 (1976) and Niagra Mohawk Power Corp. (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347 (1975).

49/ (Continued)

Cleetons, then, it follows that the Board's ruling to allow the Governor's Office to testify must stand or fall on its own merits.

The Staff believes that the Licensing Board committed no error in permitting the Governor's Office testimony. Section 2.715 of this Commission's Rules of Practice governs participation in NRC proceedings by persons not parties. Section 2.714, on other hand, governs and sets specific standards for persons who desire to intervene and participate as parties to NRC proceedings. 10 CFR § 2.714(a)(1). The rigid standards of section 2.714 are to be contrasted to the more general, flexible and permissive language of section 2.715. Specifically, section 2.715(c) provides that the presiding officer "will afford" interested states a reasonable opportunity to participate, introduce evidence, [illegible] witnesses, and file proposed findings. 10 CFR § 2.715(c) (emphasis added). See section 2.741 of the Act, 42 U.S.C. § 2[illegible]. It follows that the Licensing Board did not err by allowing the Governor's Office to present evidence on the need for power.

B. Cleetons' risk

The Cleetons contended that the routine radioactive emissions from the operation of Pilgrim Unit 2 will constitute an unreasonable threat to their family's health and safety.50/ This contention was admitted not as a generic item or a challenge to the Commission's regulations, but only to allow the Cleetons the opportunity to prove, for the purpose of the overall environmental cost-benefit balance, the specific impact on them of the routine radioactive emissions from Pilgrim Unit 2. P.I.D. ¶ 405. The Licensing Board carefully considered the Cleetons' and others' evidence on this contention (P.I.D. ¶¶ 265-286) and concluded that it failed to show that the Cleetons are inordinately susceptible to the effects of radiation. Cleetons now claim that this conclusion is erroneous.

The Cleetons assert that the Licensing Board erred in finding that no evidence was presented showing that the Cleetons would be at any greater risk from the doses of radiation emitted from the routine operation of Pilgrim Unit 2 than other similarly situated members of the public. P.I.D. ¶ 267. The Staff's review of the record supports the Licensing Board's finding.

The Cleetons' evidence relevant to the radiation resulting from the routine operation of Pilgrim Unit 2 was presented through the testimony

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50/ Cleeton Contention E, quoted at P.I.D. ¶ 404.

of Witnesses Tamplin (following Tr. 6959A), Bertell (following Tr. 7044), and Caldicott (following Tr. 7150).51/

51/ The proffered testimony of Martha Drake was ruled inadmissible. Tr. 7130-33. That proffered testimony concerned the reported health effects in the vicinity of three separate boiling water reactors, Dresden I in Illinois, Big Rock Point in Michigan, and Humboldt Bay in California. Testimony of Martha Drake following Tr. 7138. The Licensing Board ruled the proffered Martha Drake testimony inadmissible on the ground that it was irrelevant because it concerned boiling water reactors while Pilgrim Unit 2 will be a pressurized water reactor and on the ground that on its face the prepared testimony was of questionable significance. Tr. 7130-33. Only the relevancy ground was mentioned in the Partial Initial Decision and only the ruling on that basis is pursued by Cleetons in this appeal. See P.I.D. ¶ 266.

The Licensing Board did not err by ruling the Martha Drake testimony irrelevant. The Drake testimony relates only to the three oldest boiling water reactors in the United States, the closest of which to Pilgrim Unit 2 is almost 1000 miles away. There is no apparent relevancy of such testimony to the proposed Pilgrim Unit 2, a pressurized water reactor, and no connection to the Pilgrim Unit 2 is even intimated in the testimony.

The Licensing Board's rejection of the testimony is also supported by its alternative ground that the testimony on its face, and Martha Drake's own admission at the hearing, establish the unreliability of the Drake testimony. See Tr. 7130-32 for the Board's ruling.

The Drake testimony (following Tr. 7138), consisting primarily of Ms. Drake's masters degree thesis entitled "An Analysis of Leukemia Death Rates in Populations Near Boiling Water Reactor Nuclear Plants," was submitted to the Licensing Board with an attached introductory statement which reads in relevant part:

> Enclosed and submitted as testimony is a study done in 1976 of leukemia deaths in the vicinity of the three oldest boiling water reactors in the United States...
>
> These studies are imperfect as statistical evidence and do not prove that the nuclear plants cause health effects...
>
> * * *
>
> These figures are submitted knowing they are not corrected for age, race, and sex. They do not meet the criteria of a

(Continued)

Witness Tamplin's prepared direct testimony did not address at all the issue of whether Cleetons' risk from Pilgrim Unit 2 was different from others similarly situated. Testimony of Tamplin following Tr. 6959A;

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51 (Continued)

> sound statistical study. However, they are the best that can be done without funding and sophisticated expertise.

Following Tr. 7138. The study itself states:

> These findings [of an increase in the number of leukemias for areas surrounding the three oldest commerical boiling water reactors since they have been in operation] cannot be generalized beyond these three areas because they were not randomly selected. They cannot be generalized to other health effects except [for leukemia-associated tumors].
>
> * * *
>
> This study does not prove that nuclear plants caused this rise in leukemia...

P. 19 following Tr. 7138. The proffered testimony itself therefore contradicts Cleetons' argument that the Drake study shows "the appearance of <u>statistically significant</u> increases in leukemia cases around nuclear fission plants." Cleetons Brief at 4 (emphasis added). Additionally, one of the Cleetons' other witnesses on the radiological impacts of operation, Dr. Bertell, who has a doctorate in mathematics and training in statistics (Professional Qualifications of Dr. Rosalie Bertell, following Tr. 7044), also testified that the Martha Drake testimony doesn't necessarily apply to other reactors. Tr. 7197.

The Staff submits that in light of these admitted limitations, the Licensing Board was justified in excluding the Martha Drake testimony on the alternative ground that it was unreliable. <u>See</u> 10 CFR § 2.743(c). (The Staff notes that the Drake testimony was not entirely disregarded by the Licensing Board. That testimony was accepted as a limited appearance statement (Tr. 7133-34; P.I.D. ¶ 266), as well as oral statements by Ms. Drake (Tr. 7135-38), and these limited appearance statements were considered by the Licensing Board in preparing its Partial Initial Decision. P.I.D. ¶ 17. <u>See Iowa Electric Light & Power Co.</u> (Duane Arnold Energy Center), ALAB-108, 6 AEC 195, 196 fn. 4 (1973) (a limited appearance statement is not evidence but serves to alert the Board and the parties to areas where evidence may been needed).)

see P.I.D. ¶ 268. Tamplin stated on cross-examination that he had "no information whatsoever upon which to say if [Cleetons' greater risk] is true or not." Tr. 6969. He further stated that he knew nothing of Cleetons' medical history, genetic background, or disease incidents in their family. Id.

Neither does the prepared testimony of Witness Bertell address the question of whether Cleetons' susceptibility to radiation from Pilgrim Unit 2 is different from others. Testimony of Bertell following Tr. 7044. Dr. Bertell concluded that "the Cleeton family, as well as many other families in similar situations, would be exposed to an unreasonable risk to health and safety if the proposed Pilgrim 2 were to be constructed and operated." P.4 following Tr. 7044 (emphasis added). The supporting testimony, however, is devoid of any detail concerning the Cleetons' risk from Pilgrim Unit 2. Dr. Bertell didn't know what type of reactor Pilgrim Unit 2 is designed to be (Tr. 7051), hadn't read the PSAR or SER (Tr. 7055), doesn't know anything about monitoring at Pilgrim site (Tr. 7056), hasn't read most of the NRC Staff's Regulatory Guides concerning radioactive releases (Tr. 7081-83), hasn't made a study of whether the Cleetons' grandchildren are more susceptible to radiation (Tr. 7083-84), hasn't examined the estimated releases from Pilgrim Unit 2 (Tr. 7094), has not read the ER or FES or the related testimony of Staff or Applicants (Tr. 7104), and doesn't even know where the Cleetons' grandchildren live (Tr. 7117-18). The only testimony by Dr. Bertell relevant to the Board's "no evidence" statement is (1) that she was told by Mrs. Cleeton "that she has a history of arrested T.B.

and cancer in her family" (Tr. 7063) (2) "[t]hat's the extent of my understanding of her particular family" (id.) and (3) that the relative risk of cancer is higher for a family with a history of cancer (id.).

The only other witness who testified on the subject of Cleetons' risk was Dr. Caldicott. She testified that "someone like Mrs. Cleeton, with her medical history is at great risk if exposed to any additional radiation." P.2 following Tr. 7150 (emphasis added). She also testified that Mrs. Cleeton had numerous x-rays because of tuberculosis several decades ago, has a family history of cancer and therefore is more susceptible to developing cancer than the average person. Tr. 7171.

The above summarizes the Cleetons' evidence concerning their risk from radioactive emissions from Pilgrim Unit 2. The issue raised on appeal is whether, in light of this evidence, the Licensing Board erred in stating that "no evidence was presented to show that the Cleetons would be at any greater risk from the doses of radiation resulting from the routine operation of Unit 2 than are other similarly situated members of the public." P.I.D. ¶ 267. Since, as summarized above, there is "some" evidence in the record concerning Cleetons' risk, the issue turns on the phrase "other similarly situated members of the public."

One interpretation of this phrase is that it includes the many other members of the public whose family medical history, similar to Cleetons, includes such diseases as cancer and tuberculosis. Under this interpretation, the statement is obviously correct. Another interpretation, however, is that the phrase excludes persons, such as the Cleetons, whose family medical history includes cancer and tuberculosis, i.e., the

Cleetons might be at a greater risk than members of the public whose family medical history do not include cancer and tuberculosis. Even if one accepts this interpretation, however (i.e. even it Cleetons are correct that the Board erred in making the statement), any error associated with the Licensing Board's statement is harmless. No one disputed the validity of the Staff's radiation dose estimates.[52/] See, in particular, the testimony of Cleetons' Witnesses Tamplin (Tr. 7007) and Bertell (Tr. 7118-19). The design of the proposed Pilgrim Unit 2 complies with 10 CFR Part 50, Appendix I (see P.I.D. ¶¶ 117-126), the radiological impacts of operation on the environment were thoroughly considered by the Licensing Board (P.I.D. ¶¶ 265-290), and all other requirements (except emergency planning and TMI-2 related issues) were found to have been satisfied (P.I.D. ¶ 418). Thus there is no basis for denying a construction permit because of this Licensing Board finding.

C. The BEIR Report

The Cleetons also challenge the testimony presented by Staff Witness Gotchy on the incremental mortality risk of radiogenic cancer from the operation of Pilgrim Unit 2. Following Tr. 7654 and following Tr. 7820. This testimony was based, in part, on the 1972 BEIR Report. P. 4-6 following Tr. 7654 and p. 3 following Tr. 7820. See P.I.D. ¶ 279. The

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52/ The Staff estimated that the whole-body dose to the "maximum-exposed" individual, a child residing near the plant and consuming all its food and water from nearby, was 3.6 mrem/yr. P.I.D. ¶¶ 277-278. (Applicants' estimate was even lower. P.I.D. ¶ 277.) The exposure to persons like the Cleetons who reside 40 miles away, however, was shown to be orders of magnitude lower. P.I.D. ¶ 275. Thus, in fact, the record specifically demonstrates that with respect to radiation from Pilgrim Unit 2 there is no unusual threat to the health of the Cleetons, even presuming some unproven degree of sensitivity.

Cleetons claim that the Licensing Board erred in allowing "unsubstantiated data from the BEIR Report to be admitted into evidence....", quoting phrases from the 1972 and 1980 Reports which limit or qualify the data in those Reports.[53/] Cleetons' Brief at 5-6.

First of all, the Board actually didn't admit data from the BEIR Report into evidence. Rather, it allowed an expert to rely on data from the BEIR Report in offering his expert testimony. P. 4-6 following Tr. 7654 and p. 3 following Tr. 7820. See P.I.D. ¶ 279. In so doing, the Licensing Board merely followed the well-established principle that an expert witness may generally testify on the basis of facts or data not admissible in evidence if such facts or data are reasonably relied upon by experts in his field. Fed. R. Evid. 703; Nanda v. Ford Motor Co., 509 F.2d 213, 22[illegible] (7th Cir.

53/ Cleetons begin by arguing that the Licensing Board erred in "accepting as fact" Staff Witness Gotchy's projections of the risk of death from cancer to an individual living on the site boundary for thirty years. Cleetons' Brief at 5. Cleetons' argument is basically that no one could possibly say with certainty what such risk could be without knowing the detailed genetic, medical, fetal and environmental history of the individual and his or her family. Cleetons further argue that the "mere theorizing" by Dr. Gotchy should be contrasted to the "actual facts" in the Drake Report. Id.

The record shows that Witness Gotchy's projection challenged here concerns a hypothetical, "maximum-exposed" individual who lives near the site boundary and obtains all his food and water from nearby land. Gotchy testimony bound following Tr. 6494. See P.I.D. ¶¶ 277-280. As such it is merely a conservative estimate (see Gotchy testimony, supra) which is reliable and probative, notwithstanding its lack of certainty regarding any particular "real" individual (which no one is suggesting it relates to). The Board was therefore entitled to rely, in part, on Staff Witness Gotchy's testimony in assessing the radiological impact of the routine operation of Pilgrim Unit 2.

With respect to Cleetons' suggestion that Dr. Gotchy's "theorizing" be contrasted to the "actual facts" contained in the Drake Report, it is sufficient to point out that the Drake Report was correctly excluded from evidence as irrelevant and admittedly unreliable. See note 51, supra.

1974); Jenkins v. US, 307 F.2d 637, 641 (D.C. Cir. 1962) (en banc). See also Illinois Power Co. (Clinton Power Station, Unit Nos. 1 and 2), ALAB-340, 4 NRC 27, 31 fn.2 (1976), citing Fed. R. Evid. 803(18).

In allowing Staff Witness Gotchy to rely on data in the BEIR Report, the Licensing Board allowed Staff Witness Gotchy to rely in his testimony on the reported work of other experts. As stated in Wigmore's treatise on evidence:

> The data of every science are enormous in scope and variety. No one professional man can know from personal observation more than a minute fraction of the data which he must every day treat as working truths. Hence a reliance on the reported data of fellow-scientists, learned by perusing their reports in books and journals. The law must and does accept this kind of knowledge from scientific men.

2 J. Wigmore, Evidence § 665b (3d ed. 1940) (emphasis added).

More generally, of course, the strict rules of evidence do not govern administrative proceedings. See APA § 7(c), 5 U.S.C. § 556(d). And it is well established that hearsay evidence is admissible in administrative proceedings. Richardson v. Perales, 402 U.S. 389, 407-10 (1971); Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 412 (1976). Indeed, the Commission has addressed the 1972 BEIR Report specifically in the context of the Appendix I rulemaking proceeding, stating that it represents a "generally accepted evaluation of the effects of ionizing radiation." Public Service Co. of Oklahoma (Black Fox Station, Units 1 and 2), CLI-80-31, 12 NRC 264, 276 (1980), quoting Rulemaking Hearing: 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, CLI-75-5, 1 NRC 277, 311 (1975). The Commission has further stated that

"the BEIR estimates can be relied on in the absence of a contest and may be used, along with other evidence..." Black Fox, supra, CLI-80-31, 12 NRC at 277.

It follows from all the above that the Licensing Board did not err in allowing Staff Witness Gotchy's testimony to be based in part on data from the BEIR Report.[54/]

D. NEPA cost/benefit analysis

Intervenors Commonwealth and Cleetons claim the Licensing Board erred in performing a NEPA cost-benefit analysis prior to the remaining evidentiary hearings on emergency planning and TMI-2 related issues. The Staff would agree with these Appellants if the Licensing Board's cost-benefit analysis were the final NEPA cost-benefit analysis upon which would be based the issuance of a construction permit or limited work authorization (LWA). The

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54/ After calculating the incremental lifetime risk of death from radiogenic cancer from the operation of Pilgrim Unit 2, Staff Witness Gotchy compared that figure to statistics describing common lifetime risks of death from such causes as cardiovascular disease, cancer, motor vehicle accidents, and hurricanes. See P.I.D. ¶¶ 279-280 and the transcript cited therein. Cleetons claim the Licensing Board erred in allowing such a comparison. Cleetons' Brief at 6-7. Their argument, however, is that because the individual lifetime risk of cancer is "very high", that risk shouldn't be deliberately increased by building nuclear power plants.

Cleetons' argument can be fairly characterized as their opinion that there shouldn't be any nuclear power plants. But proposed nuclear plants found to satisfy the NRC's licensing requirements are lawfully entitled to be constructed and operated. Cleetons have offered no legally sufficient reason why it was error for the Licensing Board to allow the comparison of risk statistics. Such a comparison merely put in perspective a figure representing the calculated risk of death from radiogenic cancer due to the operation of Pilgrim Unit 2 which otherwise would be "in a vacuum."

Partial Initial Decision makes it explicitly clear, however, that the Board's cost-benefit analysis to date is preliminary only and that it will be redone after the emergency planning and TMI-2 hearings. P.I.D. ¶ 384.[55/] It was precisely on this basis that this Appeal Board ruled on February 5, 1981, that the Partial Initial Decision in this case does not authorize the issuance of an LWA (since an LWA can be issued only after the "ultimate cost/benefit balance") and therefore does not invoke 10 CFR Part 2, Appendix B, concerning stays.[56/] Boston Edison Co. (Pilgrim Nuclear Generating Station, Unit 2), ALAB-632 (February 5, 1981). It follows that there can be no error attached to the Board's preliminary cost-benefit analysis[57/] because the Partial Initial Decision does not authorize the issuance of either a construction permit or LWA. As the Appeal Board has stated, it is "disinclined to entertain [a] challenge [that] did not appear to be 'addressed to anyth[illegible] determined by the Licensing Board which might possibly have operative significance insofar as the design, construction, or operation of the...facility is concerned.'" Duke Power Co. (Cherokee Nuclear Station, Units 1, 2, and 3), ALAB-482, 7 NRC 979, 980 (1978), quoting Duke Power Co. (Cherokee Nucleaer Station, Units 1, 2, and 3), ALAB-478, 7 NRC 772, 773 (1978).

55/ See also P.I.D. ¶ 420

56/ All parties were given the opportuntiy to respond to this interpretation by the Appeal Board of the Partial Initial Decision, and none did.

57/ Of course, the Licensing Board cannot allow this preliminary cost-benefit analysis to improperly influence its subsequent final cost-benefit balancing. See Douglas Point, supra, 1 NRC at 552.

V. OTHER ISSUES

Several additional issues have been raised on appeal which warrant a brief discussion.

A. Financial qualifications

The Licensing Board concluded that the Applicants made a sufficient showing of their financial qualifications to construct the proposed facility. P.I.D. ¶¶ 391, 418(3). The Cleetons challenge this conclusion, arging that there has been no demonstration of BECo's current ability to finance its share of Pilgrim Unit 2 and that it is not possible to do so at this time. Cleetons' Brief at 8.

The Staff believes that the record demonstrates compliance with the Commission's financial qualifications requirements.[58/] 10 CFR § 50.33(f) requires that, for construction permit applications, the applicant need only show that it has the funds or has "reasonable assurance" of obtaining the funds necessary for construction. This standard has been upheld in New England Coalition on Nuclear Pollution v. NRC, 582 F.2d 87, 93 (1st Cir. 1978). As explained in Appendix C to 10 CFR Part 50, the Commission requires only the minimum amount of information necessary to make that showing. Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 8-23 (1978); Kansas Gas & Electric Co. (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 333-34 (1978).

58/ The Commission is reexamining the role of financial qualifications in the licensing process. See Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-81-3, slip. op. at 9 (March 23, 1981); Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 20 (1978).

The record shows that BECo has received a credit agreement making availabe to it $500 million which can be used for capital expenditures.[59/] BECO proposes to own approximately 59% of Pilgrim Unit 2. Staff Exhibit 50, SER Supp. No.4, Appendix at C-1, following Tr. 10,046. BECo's relative share of the financing is not significantly greater than its other recent construction financing. Applicants' Witnesses Kelman and May at 7-8 following Tr. 9234.

The record further shows that the other applicants also have financing pla consisting primarily of the sale of general obligation and revenue bonds, which the Staff found reasonable. SER Supp. No. 4, supra, at C-15 to C-48. The Staff's analysis of all applicants financial plans was explained to be based on modern, accepted financial analysis techniques. Tr. 9519.

The only evidence which arguably can be said to support the Cleetons' position was presented by Commonwealth's Witness Levy.[60/] Witness Levy was found by the Licensing Board to be only marginally qualified to testify on Applicant's financial qualifications, and his testimony was therefore accorded little weight. P.I.D. ¶ 76. Witness Levy's testimony was basically that BECo would have increasing difficulty selling securities for Unit 2

59/ Base and Standby Revolving Credit and Term Loan Agreement, July 31, 1979, amended October 12, 1979, filed with all parties on November 1, 1979.

60/ The Commonwealth took exception to the Licensing Board's conclusion of Applicants' financial qualifications but abandoned that exception in its Brief. See Commonwealth Exception 5 and Commonwealth Brief at 1. Cleetons excepted to the Licensing Board's conclusion of financial ability but raised no contention on the subject and offered no evidence thereon.

construction. Levy at 6 - 7 following Tr. 9434. He admitted, however, that even under his reasoning utilities have been successful in selling stock. Tr. 9470-71. Even if his testimony were accepted on its face, however, the showing of the mere difficulty of financing does not necessarily mean that there isn't "reasonable assurance" of the ability to finance. Seabrook, supra, CLI-78-1, 7 NRC at 21.

The Staff believes that the evidence establishes Applicants' financial qualifications by much more than a preponderance, especially in light of the "reasonable assurance" test of 10 CFR § 50.33(f), which is a "flexible" concept (id. at 9) not requiring "a demonstration of near certainty that an applicant will never be pressed for funds in the course of construction." Id. at 18.

B. Unresolved generic safety issues

Intervenor-Cleetons assert that the Licensing Board erred in failing to determine whether any of the unresolved generic safety issues is cause for not issuing a construction permit.61/ Cleetons argue that it is

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61/ The Cleetons claim that the Licensing Board erred by using in its findings of fact and conclusion of law "such unspecific language as 'At this time the Board has a responsibility to judge the likelihood of a predictive satisfactory timely solution.'" Cleetons' Exception No. 3, quoting P.I.D ¶ 96. See Cleetons' Brief at 3. The quoted language appears in that section of the Partial Initial Decision (Section II.F., P.I.D. at 53-57) wherein the Licensing Board summarizes the evidence pertaining to the Staff's analysis of unresolved generic safety issues and which is the basis for the Licensing Board's conclusion that the unresolved safety issues can be deferred in accordance with 10 CFR § 50.35(a). P.I.D. ¶ 418(1). A reading of 10 CFR § 50.35(a) demonstrates that the challenged language is merely a paraphrase of that regulation, which authorizes the issuance

(Continued)

unconscionable to allow construction to proceed when there are unresolved generic safety issues. Cleetons' Brief at 2.

The Staff asserts that the Licensing Board did not fail to properly determine the effect of unresolved generic safety issues on the issuance of a construction permit. Rather, as explained below, the Licensing Board concluded that no unresolved generic safety issue warranted denial of a construction permit, and this conclusion is supported by the record and in accordance with the law.

10 CFR § 50.35(a) sets forth the requirements for the issuance of construction permits. Subsections 50.35(a) (2)-(4) explicitly permit the issuance of a construction permit notwithstanding the deferral of unresolved safety issues to the operating license proceeding, so long as those unresolved issues are appropriately identified and addressed and, all things considered, there is reasonable assurance that those issues will be resolved for the facility in question before construction is completed. This procedure has received Supreme Court approval. Power

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61/ (Continued)

of a construction permit, notwithstanding unresolved safety issues, provided the applicant has a program to resolve those identified safety issues and, on that basis, there is a "reasonable assurance" that those safety issues can be satisfactory resolved before construction is complete. Reduced to its essentials, then, Cleetons' claim is that it was error for the Licensing Board to paraphase a regulation in writing a 215 page opinion. As stated by the Appeal Board: "An Appeal lies from the decision of the Licensing Board, not its opinion; it is the Board's orders (the administrative equivalent of a judgment) which are subject to appellate review." Duke Power Co. (Cherokee Nuclear Station, Units 1, 2, and 3), ALAB-478, 7 NRC 772, 773 (1978) (emphasis in original). See also Duke Power Co. (Cherokee Nuclear Station, Units 1, 2 and 3), ALAB-482, 7 NRC 979, 980 (1978). Accordingly, Cleetons' claim is without merit.

Reactor Development Co. v. International Union of Electrical, Radio and Machine Workers, AFL-CIO, 367 U.S. 396 (1961).62/

The Licensing Board's obligation regarding unresolved safety issues was stated by the Appeal Board as follows:

> [T]he licensing board's task becomes one of determining whether, on the basis of the totality of the record before it...the fourth Section 50.35(a) finding can be made. Stated otherwise, in the last analysis whether the absence of information not explicity required to be supplied at the construction permit stage will stand in the way of permit issuance authorization hinges upon the ability of the licensing board to find, without more than has been placed before it, the existence of reasonable assurance both (a) that there will be a satisfactory resolution of the outstanding safety questions prior to operation of the facility, and (b) that that operation will not present undue risk to the public health and safety.

Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 777-78 (1977) (emphasis in original; footnotes omitted).

The Staff asserts that the Licensing Board in fact properly considered unresolved safety issues and concluded that none required denial of the construction permit. The Licensing Board concluded, based on the entire record and all the evidence, that 10 CFR § 50.35(a) was satisfied. P.I.D. ¶ 418(1). The Partial Initial Decision shows explicity that the Board considered the Staff's analysis of unresolved safety issues.63/ P.I.D ¶¶ 94 - 98. No other evidence to the contrary having been offered,

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62/ Although an earlier version of 10 CFR § 50.35 was actually considered by the Court, the concept was the same.

63/ See SER Supp. No. 4, Appendix D, following Tr. 10,046.

the Licensing Board's conclusion is clearly supported by the evidentiary record[64/] and should therefore be affirmed.[65/]

64/ The Staff also argues that an additional reason for affirming the Licensing Board on this point is the failure of the Appellants to have raised this issue below. Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 348 (1978). See also River Bend, supra, ALAB-444, 6 NRC at 768.

65/ Intervenor-Cleetons contended at hearing that Applicants and Staff had not adequately assessed the radiological risk to health and safety caused by possible accidents associated with the transportation of nuclear materials to and from the proposed Pilgrim Unit 2. Cleeton Contention B, quoted at P.I.D. ¶ 408. Cleetons claim now that the Licensing Board erred in concluding that the transportation of nuclear materials does not constitute an unacceptable risk beyond the risks of day-by-day commercial transportation activities.

The Commissions' regulations pertaining to the transportation of nuclear materials to and from nuclear plants are contained in 10 CFR § 51.20(g), regarding the environmental effects of transportation, and 10 CFR Part 71, regarding the packaging of radioactive materials for transportation. The Cleetons conceded at hearing that since the environmental impact of transportation accidents has been determined generically by the Commission, there is no basis for a contention on such an issue. Tr. 3674-76.

Cleetons argue that new and more stringent NRC regulations regarding transportation promulgated during the course of the hearings indicate concern about transportation hazards, yet the Licensing Board did not reopen the record. Cleetons' Brief at 14. Cleetons do not cite any such regulations, however, and did not move to "reopen" the hearing.

Cleetons' only other argument is that many transportation accidents have occurred and will continue to do so, and no one knows when one will be disastrous. Cleetons offered no evidence, however, showing that Pilgrim Unit 2 will not comply with all applicable regulations. The record shows that Pilgrim Unit 2 is designed to be constructed and operated to meet all applicable regulations, including those pertaining to the transportation of nuclear materials. See P.I.D. ¶¶ 287-290, 409.

C. Additional matters

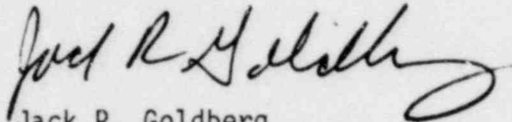
Cleetons raise two points in concluding their brief in this appeal: (1) they question whether a "consistency of judgment" is possible because of several changes of members of the Licensing Board, and (2) they state that they are entitled to a "reasoned decision" by the Licensing Board rather than a "mere recital of selected portions of the testimony and then some totally unsupported conclusions." Cleetons Brief at 14. As a legal matter, changes in the composition of the Licensing Board do not constitute error.[66/] Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 101 (1977), aff'd generally and specifically on this point, New England Coalition on Nuclear Pollution v. NRC, 582 F.2d 87, 99-100 (1st Cir. 1978). The Partial Inidial Decision is supported by a preponderance of the evidence and "articulate[s] in reasonable detail the basis" for its conclusions. See Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-104, 6 AEC 179 (1973).

66/ To correct the impression created by Cleetons, however, the Staff notes that Messrs. Cole and Callihan were members of the Pilgrim Unit 2 Licensing Board during the entire proceeding.

CONCLUSION

For the reasons set forth above, the Staff concludes that the exceptions filed by the Intervenors should be denied. The Partial Initial Decision therefore should be affirmed.

Respectfully submitted,



Jack R. Goldberg
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 6th day of July, 1981.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	
BOSTON EDISON COMPANY, et al.	)	Docket No. 50-471
	)	
(Pilgrim Nuclear Generating Station, Unit 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF BRIEF IN OPPOSITION TO INTERVENORS' EXCEPTIONS TO THE PARTIAL INITIAL DECISION" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class or as indicated by an asterisk by deposit in the Nuclear Regulatory Commission internal mail system, this 6th day of July, 1981:

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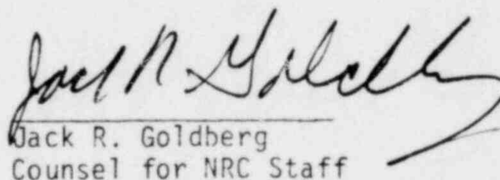

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