

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD '84 AGO 21 A10:14

In the Matter of)
DUKE POWER COMPANY, et al.)
(Catawba Nuclear Station,)
Units 1 and 2))

Docket Nos. 50-413 OL
50-414 OL
(Emergency Planning)

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APPLICANTS' REPLY TO PROPOSED
FINDINGS OF FACT AND CONCLUSIONS OF
LAW OF INTERVENORS AND THE NRC STAFF

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August 20, 1984

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'84 AGO 21 A10:16
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APPLICANTS' REPLY TO PROPOSED FINDINGS OF
FACT AND CONCLUSIONS OF LAW OF THE
INTERVENORS AND THE NRC STAFF

Pursuant to the opportunity afforded us under 10
C.F.R. §2.754(a)(3), Duke Power Company, et al. (Appli-
cants) herein file a Reply to the Proposed Findings of
Fact and Conclusions of Law (PFF) filed in this proceeding
by both Palmetto Alliance and Carolina Environmental Study
Group (Intervenors) and the NRC Staff.^{1/} (See also Tr.

^{1/} "Applicants' Proposed Findings of Fact in the Form of
a Supplemental Partial Initial Decision" (hereafter
"Apps. PFF") was filed on July 9, 1984. In its July
13, 1984 "Order on Request for Extension of Time," the
Atomic Safety and Licensing Board (Board) for the
emergency planning phase of this proceeding extended
the deadline for the filing of proposed findings by
the other parties. Under the extension granted,
Intervenors filed "Palmetto Alliance and Carolina
Environmental Study Group Proposed Findings of Fact
and Conclusions of Law in the Form of a Partial
Initial Decision" (hereafter "Ints. PFF" or "proposed
findings") on July 27, 1984, and the NRC Staff filed
"NRC Staff's Proposed Findings of Fact and Conclusions
of Law in the Form of a Supplemental Partial Initial
Decision on Emergency Planning" (hereafter "Staff
PFF") on August 8, 1984. In accordance with 10 C.F.R.
§2.754(a)(3) and §2.710, Applicants' Reply is being
submitted on August 20, 1984.

4601-02, McGarry 6/8/84). Applicants' comments on the specific proposed findings of the Intervenors and the Staff are set forth below.

1. Emergency Planning Contentions 1 and 7 --
Public Information and Education

A. General Comments

Intervenors have placed considerable emphasis upon Contentions 1 and 7 (EPC 1 and 7) both during the hearing and in their proposed findings. In evaluating the many allegations and the extensive testimony relating to these contentions, we believe that reference to the applicable regulatory standards provides a useful perspective. A review of 10 C.F.R. §50.47(b)(7) (which is also the planning standard for public education and information set forth in Section II.G. of NUREG-0654) makes clear that the basic purpose of the public information required as part of emergency response plans for nuclear power reactors is to provide the residents of the 10-mile EPZ with periodic information on (1) how the public would be notified of a radiological emergency, and what the public's initial reaction should be in such an emergency; (2) what would be the principal points of contact with the news media for dissemination of information during such an emergency; and (3) what procedures have been established for the coordinated dissemination of public information (see Apps. PFF, ¶8, p. 81, n.15). 10 C.F.R. Part 50, Appendix E, Section IV.D.2 provides additional detail on these required

notification procedures (see Apps. PFF, ¶8, pp. 81-82, n.16). The specific evaluation criteria by which public information efforts relating to emergency planning are to be judged are set forth in NUREG-0654, Section II.G. (pp. 49-51)(see Apps. PFF, ¶8, pp. 82-83).

A review of the criticism leveled at the public information and education program at Catawba by Intervenor's proposed findings reveals, in many instances, little or no relationship between the "deficiency" alleged and the requirements set forth in NRC regulations and regulatory guidance relating to emergency planning public information (see Staff PFF, ¶8, pp. 13-14). Proposed findings incorporating such cosmetic and/or stylistic criticism, which demonstrate no nexus to what is actually required by the Commission, are of little assistance to the Board.

We also note that many of Intervenor's allegations regarding the public information efforts for Catawba ignore the record evidence in this emergency planning proceeding. Intervenor's assertions that the public education and information program for Catawba is deficient must be balanced against FEMA's finding that the existing program for Catawba (and, in particular, Applicants' brochure) complies with all five evaluation criteria in NUREG-0654 and is satisfactory (Staff Exh. EP-2, Heard and Hawkins, p. 7). These FEMA findings constitute a "rebut-

table presumption" on questions of adequacy and implementation capability in NRC licensing proceedings, and Intervenor's have provided no basis for rebutting this presumption in this proceeding.^{2/} Accordingly, the Board will accord FEMA's findings on EPC 1 and 7 substantial weight.

We further note that the NRC Staff concurs with these FEMA findings. In its proposed findings on EPC 1, the Staff states:

[W]e find that the record before us does not support Intervenor's contention that this [public information] program is inadequate. Rather, we have evidence that State, local and Duke Power Company officials are in the process of diligent efforts to ensure the public is adequately informed of both how they will be notified of an emergency, and what to do in that event. We agree with FEMA that Applicants' brochure is adequate and meets NUREG-0654 Standard II.G. and all five evaluation criteria. Hence, the Board finds Contention 1 to be without merit.

(Staff PFF, ¶23, p. 22). The Staff also concludes that Contention 7 "is without merit" (Staff PFF, ¶11 (EPC 7), p. 43). In light of the record before us, the Board believes the evidence supports a finding that the public information and education program for Catawba is adequate and that none of the changes and "remedial actions" that Intervenor's propose are necessary.

In reviewing Intervenor's proposed findings on EPC 1, we were struck by the emphasis that Intervenor's have placed upon those aspects of the public information and

^{2/} See pp. 70-72, infra.

education program other than Applicants' brochure. We found this to be not only odd, but also unhelpful to the Board since the primary focus of EPC 1, as it is written, is Applicants' emergency planning brochure. While the first sentence of EPC 1 does refer to "public information provided by Applicants and state and local officials," the remainder of this lengthy contention criticizes the content of the brochure. The same is true of EPC 7. Accordingly, Applicants' prefiled testimony on EPC 1 and 7 focused largely on the brochure, in response to what appeared to be Intervenors' major area of interest. Intervenors' direct case on EPC 1 and 7 also focused exclusively upon the brochure, as did the major part of their cross-examination.

Intervenors refer several times in their proposed findings (see pp. 5, 105) to Applicants and their "allied State and local authorities." This phraseology appears calculated to convey the impression that the state and county emergency planning officials who testified during the hearing are somehow "in league" with, or subservient to, Duke, and that their testimony was not objective. Such an inference is totally unsupported by the record and is unfair to these officials. Although they work extensively with Duke on emergency planning matters, these witnesses made clear their independence in their direct testimony, their responses to cross-examination, and in

their demeanor, and the Board has recognized that these officials' views are their own (e.g., Tr. 1109-10, Margulies 5/7/64).

In the same vein, Intervenors also stress repeatedly in their proposed findings on EPC 1 and 7 the fact that North and South Carolina state and county emergency planning officials "concede reliance" on Applicants' brochure as a means of satisfying the requirements of NUREG-0654^{3/} relating to public education and information. Intervenors characterize this as an "abdication of responsibility" by state and local officials (Ints. PFF, ¶3, pp. 8-9), and an indication that these officials have failed to carry out their obligations under the North Carolina and South Carolina emergency response plans. However, the suggestion that such reliance upon the brochure is in any way improper or inconsistent with NUREG-0654 is incorrect. Moreover, state and county emergency planning officials (and the Intervenors themselves) have reviewed and commented on the brochure, making suggestions that will be incorporated in upcoming versions (Apps. PFF, ¶¶21 (p. 90), 24 (p. 92), 25-26 (p. 93), 39-42 (pp. 103-05)). It is thus inaccurate to suggest, as Intervenors do (p. 28), that Duke has "monopolized" public information efforts and thereby impeded other such efforts by the states. The

^{3/} The "considerable weight" to which NUREG-0654 standards are entitled when evaluating emergency plans is discussed in Apps. PFF, section II.B, pp. 5-6.

record reflects that while Duke's brochure is the main component of the public information program required by NUREG-0654, state and county officials have also undertaken other activities pursuant to this regulatory guidance. The result is a public information program for Catawba that completely satisfies NUREG-0654.

The Board also finds disturbing Intervenor's repeated assertion (see ¶¶1, 2, 41, 45, 48, 55, 64, 89 and 93) that Applicants have "obscured" emergency planning information and thereby deliberately failed to fulfill their regulatory obligation to disseminate to the residents of the Catawba EPZ information on how they would be notified of a radiological emergency at Catawba and what their response should be. Allegations such as the following: "Failure to communicate the necessary information is not a product of circumstances, but is a product of Duke's choice and design" (Ints. PFF, ¶54, pp. 37-38), imply that Applicants have purposefully sought to circumvent or flaunt their obligations in the area of emergency planning. Such serious allegations should not be made in the absence of clear record evidence to support such charges. Intervenor's findings do not provide such support.

B. N.C. Public Information Efforts

In ¶¶17-26 (pp. 16-21), Intervenor alleges that the State of North Carolina has failed to implement the requirement in the North Carolina Emergency Response

Plan (Apps. Exh. EP-1, Part 1, p. 53) that "educational" information on nuclear power plants be available within the EPZ. This allegation is not supported by the record. The North Carolina Plan lists on pp. 53-54 various means by which such information may be made available in the EPZ, and states that these means "may include, but are not necessarily limited to," the options listed (emphasis added). One of the options listed is the Catawba emergency planning brochure. J.T. Pugh, III, the Director of the N.C. Division of Emergency Management, explained that North Carolina has opted to rely upon Duke's emergency planning brochure to satisfy this requirement (Apps. PFF, ¶57, pp. 114-15).

As Mr. Pugh testified, such reliance is permissible under the plan (Apps. Exh. EP-1, Part 1, p. 53; Tr. 288, Pugh 5/2/84). We decline to accept Intervenors' interpretation of the language of this section the N.C. Plan (which states that the options "may include" items (a) through (i)), as requiring that "most if not exactly all items (a) through (i) and perhaps others not listed" must be used to disseminate educational information on radiation (Ints. PFF, ¶20, p. 18). To use the Intervenors' phrase, the Intervenors' reading of this language "contort[s] the plain English language meaning of the plan's own terms" (id.). Intervenors' suggestion that Mr. Pugh was not a completely forthright witness (¶19, p. 17)

is similarly without foundation. We conclude, contrary to Intervenor's assertions, that North Carolina has satisfied the objective set forth in its emergency response plan of disseminating within the Catawba EPZ "educational" information on nuclear power plants.

Intervenor's broader assertion in ¶21 (p. 18) that North Carolina "has no discernible public education and information program of its own" is also contradicted by the record (see Apps. PFF, ¶56, p. 114; Staff PFF, ¶6, pp. 12-13). Even if this were true, however, it would be permissible under the N.C. plan. We also note in this regard that Mr. Pugh also testified that the State of North Carolina is currently in the process of hiring a fulltime public information officer, which he anticipated would enable the state to expand its public education program (Apps. PFF, ¶57, p. 115) and "make more information available to the public by all means of communications" (Apps. Exh. EP-7, Pugh, p. 6). Since the Catawba plant will not operate at full power for at least the next several months, we agree that the fulltime efforts of a state public information officer in the area of emergency planning could do much to supplement existing state programs during the time that such efforts will be most important (i.e., once the plant becomes operational).

C. S.C. Public Information Efforts

In ¶¶27-40 of their proposed findings, Intervenors discuss the public information program of the State of South Carolina. We find Intervenors' assertion that South Carolina's emergency planning public information program is deficient and that state officials have made no effort to implement the plan's commitment to provide educational information (¶¶27-32) to be unsupported by the record. As with the North Carolina program, the Board notes that there is nothing improper in South Carolina's admitted reliance upon Duke to provide public information and information through its brochure. The record indicates, however, that the state has also undertaken other public information efforts (see Apps. PFF, ¶¶59-61, pp. 115-17; Tr. 4509-18, Turnipseed 6/8/84; Staff PFF, ¶6, pp. 12-13).

In ¶¶33 and 34 of their proposed findings, Intervenors cite excerpts from testimony by South Carolina emergency planning official P.R. Lunsford in which he indicates his belief in the importance of providing public information on radiation, describes some of the public information efforts undertaken by the state of South Carolina, and states that, in his view, there should be more such efforts in order to provide continuing public education on this subject. These excerpts are apparently intended to imply that Mr. Lunsford believes South

Carolina's current public information program is inadequate and that it fails to implement the "planning commitments" set forth in the S.C. Emergency Response Plan.

Contrary to Intervenors' suggestion, the fact that S.C. officials stress the need for continuing public education is not inconsistent with their testimony that the state's current public information program is satisfactory. While Mr. Lunsford believes, appropriately, that public education efforts should continue, Messrs. Lunsford and McSwain also testified that the combination of Duke's annually updated brochure and the other public education efforts that the state of South Carolina has undertaken and will undertake provide adequate information to the public on how to respond in a nuclear emergency (Apps. PFF, ¶61, p. 117) . This was corroborated by Intervenors' subpoenaed witness Ms. Judith Turnipseed, Public Information Officer for the Division of Public Safety in the S.C. Office of the Governor, who testified that the current public information program in South Carolina is, in her view, adequate and responsive to public needs (id).

The record is clear that the emergency planning public education program in South Carolina is an evolving, ongoing process. Messrs. Lunsford and McSwain testified that South Carolina "will continue to educate the public through meetings, broadcasts, newspaper coverage, and the like," and that this will satisfy the need to continue

public information programs (Apps. Exh. EP-7, Lunsford and McSwain, p. 18). Ms. Turnipseed confirmed the state's intent to carry out future public information efforts, explaining that:

There is always room for improvement. Public information is an ongoing thing. The plant is not yet open. We are just beginning our public information efforts and they will be continuing and continuous and I think the more we can do the better.

(Tr. 4525, Turnipseed 6/8/84).

In ¶¶35-39 (pp. 25-27), Intervenors cite the testimony of Ms. Turnipseed to further their argument that South Carolina emergency planning officials have failed to implement their "planning commitments" relating to public education and information. We do not believe that the evidence supports Intervenors' reading of this witness' testimony. During her testimony as a rebuttal witness, Ms. Turnipseed outlined the state's emergency planning public information efforts and testified that such efforts, in conjunction with Duke's brochure, constituted an adequate public information program (Apps. PFF, ¶61, p. 117). She acknowledged her limited technical background, and indicated that when specialized knowledge on radiation health effects was needed she relied upon other state employees (such as one of the public information specialists from the S.C. Department of Health and Environmental Control) to provide such expertise (Tr. 4538, 4541, Turnipseed 6/8/84). She further indicated that state

emergency planning officials with technical knowledge on this subject had participated in the public information program for Catawba (Tr. 4542, Turnipseed 6/8/84). We do not consider Ms. Turnipseed's non-technical background as indicating any "lack of qualifications" to serve as a public information officer, contrary to Intervenors' suggestion in ¶39 of their proposed findings. We note that it is certainly not unusual for individuals employed as public information specialists or communications specialists to rely upon and consult with others in their organization with scientific backgrounds in carrying out their jobs.

The Board concludes that South Carolina has adequately implemented the public information "planning commitments" in its emergency response plan, and that its program complies with NUREG-0654 (Staff PFF, ¶¶21-23, pp. 20-22; Apps. PFF, ¶¶65, (pp. 119-20), 68-69 (pp. 121-22)).

D. Emergency Planning Decals

With respect to Duke's decals (Apps. Exh. EP-9), which state that the reader is in an area covered by an emergency warning system and that if a 3-minute siren sounds the reader should tune a radio or TV to an EBS station, Ms. Turnipseed did (as Intervenors state in ¶36 of their proposed findings), agree that this decal does not "describe the potential hazard resulting from a nuclear facility incident" (Tr. 4519, Guild and Turnipseed

6/8/84). Since the decals are only about 3" x 5" in size, it is not surprising that extensive information of this sort is not included. Moreover, Ms. Turnipseed did not imply that the decal was inadequate to perform its intended purpose.

Duke officials testified that the more general wording of the decals (and of the larger signs posted on Lake Wylie) was used so that this warning system could also be used for other types of emergencies (Apps. PFF, ¶51, p. 111). This language is entirely consistent with NUREG-0654, which requires that posted notices "refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies" (NUREG-0654, Section II.G.2, p. 50). The language of the decal does exactly this by instructing the reader to tune a radio or TV to an EBS station and follow the broadcast instructions (Apps. PFF, ¶51, p. 111). In addition, North and South Carolina emergency planning officials favored the more general wording of the warning signs and the decals, explaining that this enhanced their effectiveness by broadening their applicability to other hazards (Apps. PFF, ¶52, p. 112). We therefore conclude that Applicants' emergency planning decal satisfies evaluation criteria II.G.2 of NUREG-0654 with respect to its content. Contrary to Intervenors' assertion in ¶62 (pp. 44-45), NUREG-0654 does not require

that such information for transients refer to "the existence of the Catawba Nuclear Station in the reader's proximity."

E. Role of County Officials

Intervenors criticize the public information role of Gaston, Mecklenburg and York County emergency planning officials in ¶¶41-43 of their proposed findings. Intervenors' primary criticism appears to be that these local officials "defer primarily to the efforts and materials of Duke Power to get the message across" (¶41, p. 28); and that they are given only limited public education responsibilities under the North and South Carolina emergency response plans. It thus appears that Intervenors are unhappy with the allocation of public information responsibilities under the plans, rather than with the county emergency planning officials' performance of their duties.

While they allege that local emergency planning officials "add little to effectively inform and educate the public as to how they will be notified and what their initial actions should be in the event of an accident at the Catawba facility" (¶43, p. 30), Intervenors fail to provide a single example or record citation to support this assertion. This lack of support, coupled with the contrary evidence set forth in Applicants' proposed findings (¶¶62-64, p. 117-19), compels us to conclude that these criticisms do not merit our consideration.

F. Applicants' "Public Acceptance"
Efforts for Catawba

In ¶¶48-55 of their proposed findings (pp. 32-38), Intervenor describe some of the components of Duke Power Company's public relations program which are not directly related to emergency planning and incorrectly characterize them as part of Applicants' "public education and information" program undertaken pursuant to NUREG-0654. As to these aspects of Duke's "public acceptance" efforts, Intervenor assert:

[W]e can and do conclude that these materials and this program fail to effectively accomplish the public information and education requirements of Commission regulations. They are, instead, clearly public relations efforts designed primarily to comfort and assure the public as to the safety for the Catawba Nuclear Station and the good intentions of its operator, Duke Power Company. As such, we at the Commission may find them laudable; but they cannot stand for Applicants' compliance with emergency planning requirements; and since they form a part of the public's information and educational understanding they must be judged along with the proffered emergency planning materials in weighing the effectiveness of Duke's total public information program.

(Ints. PFF, ¶55, p. 38).

These statements in Intervenor's proposed findings reflect a total misconception or mischaracterization of these public relations efforts, which include Duke's "public acceptance" program for Catawba (outlined in Ints. Exh. EP-7) and several publications (see Ints. Exhs. 8, 11 and 12). Intervenor appear to believe that all of Duke

Power Company's public relations or public information efforts must be related to emergency planning at Catawba, and that the company's entire public relations program must be designed to comply with the public information evaluation criteria set forth in NUREG-0654. Obviously, this is not the case.

We assume that Duke Power Company, like other utilities, undertakes extensive and diverse public information and public relations efforts which are aimed at a variety of audiences and which may serve a number of purposes. Some of these efforts were discussed at the hearing and are summarized in Apps. PFF, ¶¶53-54, pp. 112-13. Those aspects of the Applicants' public information program specifically designed to comply with Section II.G. of NUREG-0654 comprise only a small part of this effort. Yet it is only these particular aspects of the company's overall public relations program that are relevant to Contentions 1 and 7. It is hardly surprising, therefore, that many of the activities and the written material discussed in discovery materials obtained by Intervenors do not deal directly (or do not deal at all) with emergency response information, and, as Intervenors point out, "contribute nothing" to the satisfaction of NRC emergency planning regulations and regulatory guidance. They were not meant to do so.

Both the Applicants and the NRC Staff have taken the position that the elements of Applicants' public relations program other than the brochure are beyond the scope of EPC 1 and 7 (Tr. 472-73, McGarry 5/2/84; Tr. 478, McGurrien, 5/2/84). Applicants further assert that the brochure alone satisfies the public education requirement in NUREG-0654 (Tr. 491, McGarry 5/2/84). Accordingly, Applicants objected to Intervenors' cross-examination on other aspects of Duke's public relations program as irrelevant (Tr. 472-73, McGarry 5/2/84). The Staff also questioned the relationship between Duke's "public acceptance efforts" for Catawba and its public information efforts designed to comply with NUREG-0654 (Tr. 472, McGurrien 5/2/84). We agree that not every aspect of the company's public relations program constitutes a part of its emergency planning information effort, and, accordingly, that not every aspect of its program should be evaluated under Section II.G. of NUREG-0654. The only materials relevant to our determination on EPC 1 and 7 are those proffered by Applicants as a part of their emergency planning public information and education effort.

G. Surveys of Catawba EPZ Residents

In ¶56 of their proposed findings (pp. 39-40), Intervenors refer to the results of the two "Community Issues" surveys of Catawba EPZ residents conducted by Chernoff/Silver & Associates in 1983 and 1984. These surveys

were not offered into evidence by Applicants, who took the position that (1) they were beyond the scope of EPC 1 and 7, which are limited to the brochure; and, in the alternative, (2) even assuming that these contentions encompass other public information efforts, such efforts do not include the surveys (Tr. 485-86, McGarry 5/2/84). Intervenors unsuccessfully attempted to introduce these surveys; they became Ints. Exhs. EP-9 and EP-10 for identification purposes only.

Intervenors now ask the Board to infer from Applicants' failure to offer the surveys that "such evidence would prove adverse to Applicants' defense on these contentions and would instead support Intervenors' claims" (Ints. PFF, ¶56, p. 40). The Board declines to make such an inference, and also reminds Intervenors that their suggestion is highly improper. There is absolutely no basis in the record for such an inference; nor do Intervenors even attempt to supply such a basis. This Board clearly cannot draw substantive conclusions from a party's decision not to offer arguably irrelevant material into evidence.

Similarly, we reject the proposed inference that Intervenors would have us draw in ¶57 (p. 40) that the testimony of Mr. Marvin Chernoff "reflects unfavorably" on Applicants' "defense" of these two contentions. Intervenors were allowed to question Mr. Chernoff on whether he

believed Duke's public information program has been successful (Apps. PFF, ¶31, pp. 97-98). Mr. Chernoff testified that the survey results suggest that EPZ residents are less concerned about radiation effects and the possibility of a radiological accident than the population as a whole (Apps. PFF, ¶32, p. 98). While Intervenor would have us view this as a demonstration that these individuals have been "lulled into a sense of false security" (Tr. 4290, Guild 6/7/84), we find no basis in the record for such an interpretation. An equally (if not more) plausible explanation for this attitude is that Catawba EPZ residents have sufficient information to be reassured about the low probability of an accident and about the emergency planning efforts being undertaken to protect EPZ residents should such an unlikely event occur (see Tr. 4521, Turnipseed 6/8/84).

The Board further notes the impropriety of Intervenor's citing from one of their exhibits which was admitted for identification purposes only (and accepted as an offer of proof only). As Intervenor is well aware, this Board cannot base its decision in any way upon evidence that is not a part of the record. See 10 C.F.R. §2.743(e), which refers to offers of proof as "excluded evidence," and 10 C.F.R. §2.754(c), which states in pertinent part: "Proposed findings of fact shall be . . . confined to the material issues of fact presented on the

record . . ." (emphasis added). See also Duke Power Company (William B. McGuire Nuclear Station, Units 1 & 2), LBP-73-7, 6 AEC 92, 95 (1973), wherein the Licensing Board in that proceeding reprimanded Mr. Jesse Riley of CESC for, among other things, filing proposed findings based upon documents and other statements not in evidence.

H. Distribution of Decals

In ¶61 of their proposed findings (pp. 43-44), Interveners state that no evidence was offered "of any information at all to be placed in hotels, motels, gasoline stations, or phone booths" (p. 44), as is contemplated by Section II.G.2 of NUREG-0654. We note in this regard that in response to questioning by Interveners' counsel on whether any measures had been used to disseminate information to transients within the Catawba EPZ, Applicant's witness Carter indicated that Applicants' emergency planning decals "are out" (Tr. 269, Carter 5/2/84). Interveners conducted no cross-examination on the question of where in the EPZ the decals have actually been distributed. However, the Board has no reason to assume that Applicants have not disseminated their decals in accordance with the regulatory guidance set forth in Section II.G.2 of NUREG-0654.

I. FEMA Testimony

In ¶62 of their proposed findings (p. 45), Intervenor-ors discount the testimony of FEMA officials in this proceeding, alleging that FEMA's testimony should be accorded very little weight. We disagree. FEMA witnesses Heard and Hawkins have both reviewed the North Carolina and the South Carolina emergency response plans (which include the various county plans) for the Catawba Nuclear Station. FEMA's Regional Assistance Committee (consisting of representatives from eight other federal departments and agencies) and its Region IV Staff also reviewed the plans to assure that all NUREG-0654 standards and criteria applicable to state and county government organizations have been satisfied. Messrs. Heard and Hawkins also prepared written testimony on all of the contentions in this proceeding, and were made available for cross-examination (see Staff Exh. EP-2; Tr. 1460-1671, 5/9/84).

In addition, these FEMA witnesses assisted Duke officials and N.C. and S.C. officials in developing the scenario and the objectives for the February, 1984 Catawba exercise, participated as evaluators during the exercise, and wrote and reviewed the assessment report of the Catawba exercise. In sum, the FEMA witnesses and other FEMA officials have devoted extensive time and effort to their evaluation of the emergency response plans for Catawba. We see no reason why FEMA's findings should not

be afforded their usual weight in this proceeding -- i.e., they constitute a "rebuttable presumption on questions of adequacy and implementation capability." (10 C.F.R. §50.47(a)(2).^{4/}

J. Applicants' Brochure

In ¶63 of their proposed findings (p. 45), Intervenor turn to Applicants' brochure, which was the primary focus of both the direct testimony and the cross-examination on EPC 1 and 7 during the hearing. Intervenor correctly point out that several changes were made in the preliminary (1983) version of the brochure and are reflected in the current version. This 1984 version of the brochure has been reviewed by state emergency planning officials from North Carolina and South Carolina and found adequate by each of them (see Apps. PFF, ¶¶39-41, pp. 103-105). As both Applicants and Intervenor point out, however, Messrs. Pugh, Lunsford and McSwain suggested certain minor changes for future versions of the brochure which Applicants have agreed to make (Apps. PFF, ¶¶39, 41, pp. 103-105).

Intervenor assert in ¶64 (p. 46) that Duke's brochure "is inadequate to inform the public as required by Commission regulations in that it falsely reassures the reader regarding the hazard of exposure to accidental releases of radiation from the facility," and that it is

^{4/} See pp. 70-72, infra.

"ineffective in communicating instructions on emergency response." However, no evidence is cited to support these allegations. Unsupported conclusions of this type are of no assistance to this Board, and will not be considered in our assessment of EPC 1/7. The Board further notes that, interestingly, Intervenors conceded during discovery that Applicants' brochure does comply with 10 C.F.R.

§50.47(b)(7) (see Apps. PFF, ¶7, p. 80).

1. Intervenors' Witnesses on the Brochure

In ¶¶71-83 of their proposed findings, Intervenors discuss their direct case on contentions 1 and 7, presented through the testimony of witnesses Andrews, Pittard and Rutledge. Intervenors urge the Board to find that the testimony of these individuals reflected "authoritative, thoughtful and balanced criticisms of the brochure's design and content . . ." (¶71, p. 51). The record does not support this characterization of Intervenors' witnesses. For example, Ms. Andrews, while apparently a sincere and forthright witness, is not qualified as an expert on emergency plan brochures. Her "academic training in crisis intervention" consists of a single one-semester college course (Tr. 1760-61, Andrews 5/10/84). The witness has no formal training or professional experience as a disaster specialist, and does not hold herself out as an expert in disaster intervention (Apps. PFF, ¶35, pp. 100-101).

Moreover, Ms. Andrews' criticisms, which focus on the style and organization of the brochure, are totally unrelated to applicable NRC regulations and regulatory guidance. Indeed, Ms. Andrews testified that she was unfamiliar with Commission requirements relating to the brochure (Apps. PFF, ¶35, p. 101). She would thus not be qualified to evaluate the brochure's compliance with applicable regulatory requirement even if asked to do so. Her testimony is simply not relevant to our review of Applicants' brochure.

Intervenors' witness Pittard criticized the "design theme" of the brochure for being too long, for not placing all necessary information at the beginning of the brochure, and for not using "alarm" colors to reinforce the brochure's message (Apps. PFF, ¶33, pp. 99-100). Here again, however, Ms. Pittard's testimony has absolutely no nexus to NRC requirements applicable to emergency planning brochures. Her testimony is irrelevant to the issue before us. Even more importantly, Ms. Pittard acknowledged that Duke's brochure complies with NUREG-0654 requirements (Apps. PFF, ¶33, p. 100).

Intervenors' witness Rutledge is not qualified as an expert in conducting surveys. In addition, as Intervenors point out, Mr. Rutledge's survey of McGuire EPZ residents was excluded because of its lack of relevance to this proceeding (Apps. PFF, ¶36, p. 101). While Intervenors

state in ¶111 of their proposed findings (p. 71) that Mr. Rutledge limited his survey to the McGuire EPZ population for "justifiable" and "praiseworthy" reasons, we are not told what these reasons were. Accordingly, we can form no opinion on this question.

The Board further notes that, despite the fact that Mr. Rutledge's survey results are not part of the record, Intervenor's attempt to draw an inference from them in ¶111 (p. 71) of their proposed findings, stating:

We note, without reliance thereon, that Mr. Rutledge's survey results raise troubling questions as to the effectiveness of the dissemination of information and its understanding in the McGuire EPZ. Intervenor's offer of proof, Tr. 1811, 5/10/84. We trust that the NRC Staff and FEMA will take advantage of the availability of this empirical information with respect to the McGuire planning and take appropriate and effective action to correct any deficiencies.

As we have stated earlier, such references to material that is not a part of the record are improper. We expect the Intervenor to comply with §2.754(c) of Commission regulations, which state that proposed findings of fact "shall be confined to the material issues of fact presented on the record" (emphasis added). This attempt to draw the Board's attention to material not admitted into evidence is improper and unprofessional.

2. Intervenor's Criticisms of Brochure

In ¶84 (p. 58) of their proposed findings, Intervenor's assert that Applicants' brochure is "ponderous, verbose, overly technical and wholly ineffectual" in

communicating its required message. We note, first, that these criticisms are essentially stylistic and cosmetic. As to the content of the brochure, we note that the subject matter addressed therein is dictated by NUREG-0654, Section II.G, Evaluation Criteria 1, which requires that the information periodically distributed to EPZ residents include (a) educational information on radiation; (b) the contact for additional information; (c) protective measures (evacuation routes and relocation centers, sheltering, respiratory protection, radioprotective drugs); and (d) special needs of the handicapped. The brochure addresses all of the subjects listed in 10 C.F.R. §50.47(b)(7); Appendix E, Part D.2 of 10 C.F.R. Part 50, and NUREG-0654, Section G.I (Apps. Exh. EP-7, Glover, p. 5). Whether or not Intervenor find such material "ponderous" is irrelevant, since it is included to satisfy applicable Commission regulations.

Moreover, we do not agree that the organization and format of the brochure is "ponderous." The entire brochure consists of only eleven pages of text plus a map and listing of shelters, and a map designating protective action zones. The brochure is tabbed for ease of reference and the text has clear headings and large margins. The organization of the text, which places background information on radiation, the operation of a nuclear power plant, and definitions of nuclear terms up front, is

designed to aid the reader in understanding the importance of emergency planning and protective actions (Apps. Exh. EP-7, Carter, p. 5).

Nor do we agree that the brochure is verbose. Applicants' reading specialist, Ms. Duckworth, testified that the brochure "effectively communicates how you would be informed and what actions to take in the event of a nuclear accident" (Tr. 450-51, Duckworth 5/2/84), that it conveys this information "as appropriately as possible" (Tr. 452, Duckworth 5/2/84), and that while there is some material in the current brochure that could be termed verbose, such material conveys concepts that are "very difficult to make less wordy . . ." (Tr. 455-56, Duckworth 5/2/84).

Intervenors' unsupported assertion (Ints. PFF, ¶85-89) that the brochure attempts to "obscure" the nature of the hazard involved is simply incorrect. The brochure clearly indicates that radiation is harmful and does not hide the possibility of an emergency at Catawba. Indeed, this possibility is stressed in the brochure at the first possible opportunity, in the first paragraphs of the text on the inside cover. Instructions are given on what steps to take if radiation is released (Apps. PFF, ¶13, pp. 84-85). Moreover, North Carolina and South Carolina emergency planning officials testified that details regarding lethal doses of radiation are not considered necessary;

rather, the intent is to educate the public about radiation in general (Tr. 298-308, Pugh, Lunsford, and McSwain 5/2/84; Staff PFF, ¶10, p. 14). In this regard, we note that in discussing similar allegations, the Licensing Board in Big Rock Point stated:

A pamphlet cannot exhaustively treat the subject of the effects of radiation and it all-too-easily can become too elaborate and extensive to communicate effectively. If that were to occur, the pamphlet likely would go unread and its role as an action document would be defeated.

(Consumers Power Company (Big Rock Point Plant), LBP-82-60, 16 NRC 540, 544 (1982)).

The FEMA witnesses also testified that the information contained in the brochure on the hazards of radiation is adequate (Staff Exh. EP-2, Heard and Hawkins, pp. 4-5). Intervenors offered no evidence to refute the testimony of these witnesses that the brochure is satisfactory on this point. Finally, the Board disagrees with Intervenors' implicit premise that the public is totally unaware of the hazard of exposure to radiation. The world-wide attention which has been given to the nuclear arms race since World War II, the civil defense program during the last several decades, and, more recently, the TMI accident, have certainly educated the American public on this subject. Such background knowledge, coupled with ongoing public information efforts by Duke and by North and South

Carolina officials, provide the Board with reasonable assurance that the Catawba EPZ population is aware of the dangers of radiation (see Tr. 308, McSwain 5/2/84).

In ¶91, Intervenors suggest that emergency planning information, such as an explanation of the meaning of the sirens, and a listing of evacuation routes, would be more effective if placed at the beginning of the pamphlet. We believe that in the brochure's inclusion of tabs for use of reference alleviates this concern. Under the tab labeled "Emergency and You" the reader can quickly locate information on the sirens, EBS stations, and instructions on in-place sheltering.

In ¶95 (p. 54) of their proposed findings, Intervenors would have the Board "direct that Applicants submit . . . reviewed public information materials to the parties and this Board for review and approval" to demonstrate compliance with applicable regulatory requirements. We agree with the Applicants and the NRC Staff that the brochure is adequate as written and that it currently satisfies NUREG-0654, Section II.G (Apps. PFF, ¶¶ 68-69, pp. 121-22; Staff PFF, ¶23, pp. 21-22). Therefore, no revisions are necessary.^{5/}

^{5/} In the event that the Board directs that any changes be made to the brochure, Applicants request that the Board delegate to the NRC Staff the responsibility of reviewing such revisions. This would eliminate the necessity of this Board's retaining jurisdiction over any of the emergency planning contentions after the issuance of its supplemental partial initial decision.

In ¶¶97-101, Intervenors reiterate earlier criticisms, alleging again that Applicants' emergency planning brochure "fails to focus on the hazard for which preparedness and emergency planning is necessary" (p. 65), fails to "site [sic] evidence indicating health effects of exposure to very low levels of radiation" (id.), implies that radiation "is not particularly harmful" (id.), and fails to include a chart to indicate levels of exposure during radiological accidents (id.). Intervenors correctly point out that Applicants' and FEMA's testimony respond to these criticisms. For a point by point refutation of these criticisms, see Apps. PFF, ¶¶12, 13, 15-19, pp. 84-89; Staff PFF, ¶¶8-11, pp. 13-15. Since we agree with the Applicants' and the Staff's findings on these points, further amplification is not necessary.

While we certainly agree with Intervenors' repeated argument that emergency planning brochures must convey that "the hazard for which we are planning is a serious one involving threats to life and health and that, therefore, the public must prepare to respond to and take the threat seriously" (Ints. PFF, ¶101, pp. 66-67), a fair reading of Applicants' brochure demonstrates that it accomplishes this. We also note in this context the testimony of state and county officials that the current public information program provides reasonable assurance

that the public is sufficiently well informed to respond appropriately to notification of an emergency (Apps. PFF, ¶14, pp. 85-86; Staff PFF, ¶9, pp. 13-14).

In ¶¶102-105 (pp. 67-68), Intervenors focus on "the inappropriate reading level of the brochure," which they allege "will not be effectively comprehended." Intervenors offered no testimony to support this argument during the hearing. See Apps. PFF, ¶¶27-29, pp. 94-96, for Applicants' discussion of this allegation. As Applicants point out therein, the brochure was designed and written in a form and at a reading level that could be understood by a broad segment of its intended audiences. Instructional portions are written at a seventh grade level, while narrative portions are written at an eleventh grade level (Apps. PFF, ¶27, p. 94). Various efforts are being undertaken to assure that the information in the brochure is accessible to blind and illiterate EPZ residents (Apps. PFF, ¶29, pp. 95-96). While Dr. Duckworth agreed that the 1984 brochure still contains some material that she considers verbose, she also testified (as noted above) that the concepts that this material discusses are complex, and difficult to convey without being verbose (Tr. 455-56, Duckworth 5/2/84).

As for Intervenors' assertion in ¶104 that Applicants offered no expert evidence as to "the effectiveness of the brochure in terms of its comprehension or vocabulary," or the "appropriateness of targeting the 'average reader' . . ." (p. 67), we note that these issues were never raised by the Intervenors during either their cross-examination or their direct case. These issues are also unrelated to any Commission requirements relating to the brochure. Accordingly, we will not consider them. The Board further notes that the Staff takes the position that "Applicants' brochure is adequate in regard to reading level and comprehension" (Staff PFF, ¶18, p.19).

In ¶¶106-107 of their proposed findings (pp. 68-69), Intervenors assert that the brochure is deficient for failing to include a definition of the term "plume exposure pathway" or information concerning the "phenomenon of radiation transport" to assure that "the public will understand the necessity and general means of taking protective action when directed" (p. 68). Applicants testified that such information is not required by NRC regulations or by NUREG-0654, and that providing general information on plume pathways could be counterproductive because it could confuse the reader and cause him not to follow the protective action recommendations given in EBS broadcasts, which are based upon the specific conditions at the time of the emergency (Apps. PFF, ¶30, pp. 96-97).

Intervenors offered no evidence to refute this testimony. FEMA witness Heard testified that the omission of the definition of "plume exposure pathway" from the brochure was not a matter of concern (Tr. 1513, Heard 5/9/84).

The Staff also concludes that the lack of a definition of this term in the brochure is inconsequential, stating:

We note that the brochure does divide the EPZ into various sectors and assigns specified evacuation routes for each of those sectors on maps on pages 12 and 14 of the brochure. Apps. Exh. EP-5. In addition, it does discuss the possibility that not all areas will be affected and that such things as wind speed and direction will determine what areas will be affected if there were an accident at Catawba. Apps. Exh. EP-5, at 9; Staff Exh. EP-2, Heard, Hawkins, at 6. While the brochure may not define for the public what a plume exposure pathway is, it does tell them what sector they live in and that specific instructions for protective actions at the time of an accident will specify what the people in each sector should do. The Board finds this to be sufficient information to inform the public of what their specific actions should be in an emergency, in compliance with 10 C.F.R. §50.47(b)(7).

(Staff PFF, ¶16, p. 17).

We agree with the Applicants and the Staff that no definition of "plume exposure pathway" in the brochure is necessary to convince EPZ residents of the necessity of taking protective action if directed to do so, or to "make comprehensible" EBS instructions.

K. FEMA Survey

In ¶108-113 of their proposed findings (pp. 69-72), Intervenor ask the Board to find that "troubling questions remain as to the effectiveness with which Duke and the State and local have actually disseminated . . . public information materials" for the Catawba EPZ residents and transients (pp. 69-70). As the basis for this assertion, they note that FEMA has not conducted the survey of EPZ residents required by FEMA-43 and that Applicants have declined to offer into evidence the results of their own surveys of the Catawba EPZ population, which included questions on the receipt of public information material.

With respect to these assertions, we note, first, that contentions 1 and 7, as written, raise concerns relating to the content, rather than the dissemination, of public information for Catawba. The only material relevant to the adequacy of distribution of Duke's public information on Catawba was the Chernoff/Silver Associates survey results, which were properly excluded by the Board. Mr. Rutledge's survey covered the McGuire EPZ rather than the Catawba EPZ, and was also excluded. It is therefore difficult to understand why Intervenor raise this issue, which was not addressed by the parties during the hearing,

in their proposed findings. Their discussion of the "dissemination" question is irrelevant and is not helpful to the Board in our consideration of EPC 1 and 7.

Moreover, as we noted previously, Intervenors' attempt to have the Board draw any inference whatsoever from Applicants' decision not to offer in evidence the results of the surveys conducted by Chernoff/Silver Associates is improper. Third, the Board again cautions Intervenors against referring to, and drawing proposed conclusions from, documents (such as Mr. Rutledge's survey) that are not a part of the record, as they do in ¶111 of their proposed findings. This practice contravenes Commission regulations set forth in 10 C.F.R. §2.754(c).

Intervenors' inference in ¶110 (p. 70-71) that FEMA has contravened regulatory guidance in FEMA-43 by having not yet surveyed Catawba EPZ residents to determine the effectiveness of the public information program is incorrect. We note that FEMA witness Heard testified that the FEMA telephone survey of Catawba EPZ residents has not yet been conducted because at the time of the hearing neither FEMA nor North or South Carolina had received "any of the official documents" relating to the Catawba exercise. Therefore, Catawba's alert notification system had not yet been officially accepted by FEMA (Tr. 1596, Heard 5/9/84). For this reason, FEMA had not yet added

Catawba to its national schedule for conducting such surveys, and its technical contractor had not yet reviewed the notification plans (Tr. 1596-97, Heard 5/9/84).

While these surveys are in some cases performed in conjunction with the emergency planning exercise, Mr. Heard indicated that in Region IV, FEMA does not prefer this approach because "we feel it would diminish the importance of both" (Tr. 1594, Heard 5/9/84), explaining that "there's enough activity going on in an exercise without the additional burden of determining the adequacy of the alert notification system" (Tr. 1596, Heard 5/9/84). We have no reason to believe that this survey will not be performed, in accordance with FEMA requirements.

L. Applicants' Student Brochure

In ¶¶114-119 (pp. 72-76), Intervenors discuss Applicants' student brochure, asserting that it "fails to accomplish the stated purposes effectively while suffering from many of the same design and content problems as the principal brochure . . ." (p. 73). We note that this student brochure is not required by NRC regulations (Apps. PFF, ¶43, p. 105). It was prepared by Applicants as a service to the area schools and school children, and, because of its intended audience, is much simpler in format and in content than the emergency planning brochure (id.). N.C. and S.C. emergency planning officials indi-

cated that Duke has been receptive to their comments on the student brochure (Apps. PFF, ¶43, pp. 105-06). Because this student brochure is not required public information material and is not designed to comply with applicable regulations and regulatory guidance, the Board believes that Intervenors' criticism of this brochure is misplaced. We will not consider this criticism in our evaluation of EPC 1.

In ¶¶117-119 (pp. 74-76), Intervenors refer to the testimony of rebuttal witness Brenda Best. Ms. Best expressed concern that she had been given no instructions on what to do in the event of a radiological emergency at Catawba, even though the school brochure (which was distributed this past spring in the local high school where she teaches) tells students that their teachers and principal have been "taught what to do" in a radiological emergency. She acknowledged, however, that such training relating to the school brochure could be provided this fall when the student brochures are again distributed, since Catawba will not be operational for at least the next several months (Apps. PFF, ¶44-45, pp. 106-07). We have no reason to doubt that such training will take place.

M. EPC 7

1. Information on Shielding Capacity

In ¶¶3-6^{6/} of their proposed findings on Contention 7 (pp. 77-79), Intervenor urge the Board to direct that Applicants' emergency planning brochure include information "to enable the public to understand the comparative effectiveness of various structures for use during in-place sheltering" (pp. 78-79). No evidence is offered in support of this assertion.

We do not believe that any such information is needed. Applicants' brochure lists six specific actions to be taken by the public in the event that in-place sheltering is recommended.^{7/} This information meets NRC requirements. The six steps will also be broadcast on EBS messages (Apps. PFF, ¶¶47-48, p. 108; Staff PFF, ¶¶7-8, pp. 42-43). The brochure also contains instructions on how to maximize sheltering while driving a vehicle to a shelter (Apps. PFF, ¶47, p. 108). FEMA witness Heard testified that NUREG-0654 does not require that public

^{6/} Intervenor's proposed findings on EPC 7 are numbered separately from their findings on EPC 1.

^{7/} Intervenor proposed a finding that the brochure's direction to "move to a basement if possible" is "gratuitous" because "basements are indeed uncommon in the southeast region where the Catawba facility is located" (¶5, p. 78). No evidence is cited in support of this statement, and we do not recall any evidence on this point during the hearing. An important generalization of this nature must be substantiated by record evidence if the Board is to accept it. We do not adopt this assertion.

information address preparation for in-place sheltering, and that the public need only be directed to follow EBS instructions (such as closing doors, windows, etc.). Such information is given in the brochure (Staff PFF, ¶9, p. 43). Finally, as the Staff points out, information on the specific shielding factors of various structures

goes to the basis for the choice of recommended protective actions by emergency management officials (under evaluation criterion II.J.10.m, cited above), rather than to any actions required to be taken by the public. Finklea, Tr. 790-91. This information is addressed in the Applicants' and State plans (Carter, Tr. 216), and there is no requirement that such information be included in the public brochure. Heard, Tr. 1544.

(Staff PFF, ¶10, p. 43).

2. Additional Information on Respiratory Protection

We also reject Intervenors suggestion in ¶¶7-10 (pp. 79-80) that information on the "relative effectiveness of commonly available materials [for respiratory protection] should be included" in Applicants' brochure. A review of the brochure demonstrates that it contains adequate information on protective actions that should be taken in the event of a radiological accident, and on methods of reducing possible radiation dosage (Apps. PFF, ¶18, p. 88; Staff PFF, ¶15, p. 16). FEMA officials corroborated this, testifying that the brochure's instructions on protective actions comply with applicable regulatory requirements and guidance (Apps. PFF, ¶¶19-20, pp. 89-90). Moreover, we see little substantive difference between the instructions

on p. 10 of Applicants' brochure, which state: "Place a damp cloth over your nose and mouth. This would help keep radiation from entering your body," and the brochure language cited by Intervenors as being approved in Big Rock Point, which states "Put on a dust mask or breathe through a damp handkerchief to filter out any dust in the air." The language in Applicants' brochure is, if anything, more appropriate.

3. FEMA Testimony

Intervenors attack the testimony of FEMA's witnesses on the issue of sheltering in ¶11 (pp. 80-81) of their proposed findings, asserting that FEMA's endorsement of the North and South Carolina emergency response plans and of the brochure on this point is "without any apparent factual basis." This allegation is unwarranted. We note, first, that the FEMA testimony Intervenors refer to in this paragraph actually states that "no pre-planned preparations are required by NUREG-0654 for in-place sheltering" (Staff Exh. EP-2, Heard and Hawkins, p. 14). A review of NUREG-0654 confirms that this is true. In addition, Mr. Heard did not say that information on sheltering as a protective action is not required. Indeed, Section II.G.1.C. does mention the dissemination of information on this subject; such information is included in the brochure. Messrs. Heard and Hawkins also indicated in

their testimony that the public will be advised of actions to take for effective sheltering through the brochure and through listening to EBS broadcasts (id.).

Testimony from FEMA and from emergency planning officials also indicated that the N.C. and S.C. plans themselves contain adequate information on sheltering actions the public may need to take (Apps. PFF, ¶49, p. 109; Staff PFF, ¶¶10-11, p. 43). Finally, we note that considerable weight is given to FEMA findings, which constitute a rebuttable presumption on questions of adequacy and implementation capability. 10 C.F.R. §50.47(a)(2). Intervenors have failed to provide any basis for questioning the FEMA testimony in question. Had they wished to clarify the grounds for FEMA's findings in this area, Intervenors could have done so on cross-examination.

In sum, the Board concurs with the Staff's finding that Applicants' brochure contains "adequate information on the initial sheltering actions members of the public may need to take in the event of an accident at Catawba, and that Contention 7 is without merit" (Staff PFF, ¶11, p. 43).

N. Recommendations of Mr. Rutledge

On pp. 81-87 of their proposed findings, Intervenors discuss the recommendations made by Mr. Rutledge in that portion of his testimony that was not struck by the Board.

Applicants' analysis of these recommendations is set forth in ¶¶36-37 (pp. 101-103) of Applicants' proposed findings. The Board agrees with Applicants' analysis, and does not find any of Mr. Rutledge's suggestions meritorious.

O. Conclusion

In sum, the Board concludes that the record in this proceeding demonstrates that the public education and information efforts of Duke Power Company, North and South Carolina, and Gaston, Mecklenburg and York counties comply with applicable NRC regulations and with the regulatory guidance in NUREG-0654, and that Intervenors' contentions 1 and 7 are without merit.

II. Emergency Planning Contentions 3
and 6 -- Adequacy of Food, Clothing, Bedding
and Shelters

In their proposed findings of fact on these two contentions (EPC 3 and 6), the Intervenors have raised several points that merit our response. Implicit throughout the Intervenors' proposed findings on these contentions, and explicit in ¶¶5-10, (pp. 89-93), is their position that the adequacy of a so-called ad hoc approach to responding to various accident scenarios and emergencies should be questioned. In particular, Intervenors state (¶6, p. 90):

This casual confidence that the Catawba Emergency Plans are rather effortlessly expandable pervades the position of Applicants, responsible officials and the NRC Staff on this and a number of other contentions. We remain unpersuaded that effective protective action can be taken on the basis of essentially ad hoc efforts over the wide range of accident scenarios and consequences.

This allegation is disingenuous. It misconstrues both the Catawba emergency plans and the NRC's emergency planning requirements.

First, the Intervenors totally ignore the facts on the record which demonstrate that extensive specific planning has taken place for food, clothing, bedding, shelters and radiation monitoring (see Apps. PFF (EPC 3), ¶¶5-12, 15-16, 26-28, pp. 126-30, 132-33, 139-42; Apps. PFF (EPC 6), ¶¶14-19, pp. 151-54; see also Staff PFF, ¶¶8, 14-15, 20-22, pp. 27-28, 32-33, 36-37). This

planning has been intended to accommodate the entire population of the 10-mile Catawba emergency planning zone (Apps. PFF (EPC 3), ¶¶13-15, pp. 130-132; Staff PFF, ¶¶8, 20, pp. 28, 36). It is simply inconsistent with the record for Intervenors to imply that no planning has been undertaken or that no supplies, shelters, or personnel have been identified for emergency response. The Intervenors themselves have pointed to no evidence in the record which would demonstrate that the planned resources are inadequate.

Second, the Intervenors also misconstrue the record and the regulations in somehow turning against the Applicants the fact that the emergency plans are expandable on an ad hoc basis. The fact that the plans are expandable is referenced in Apps. PFF (EPC 3), ¶¶13, 20, 26, pp. 130-31, 136, 139-40. The experts testified that depending upon the time available and the severity of the accident, increasingly greater concentric circles of supplies, shelters, and volunteers could be drawn upon in order to respond to the emergency. The point ignored by the Intervenors is that this approach to emergency planning, i.e. core planning for the EPZ plus ad hoc expansion if necessary, is exactly the approach recommended by the Commission's regulatory guidance (see

Southern California Edison Company, et al. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 533 (1983)).^{8/}

Moreover, NUREG-0654, at p. 5-6, states:

The NRC/EPA Task Force Report on Emergency Planning, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants, NUREG-0396, EPA 520/1-78-016" provides a planning basis for offsite emergency preparedness efforts considered necessary and prudent for large power reactor facilities. . . .

The overall objective of emergency response plans is to provide dose savings (and in some cases immediate life saving) for a spectrum of accidents that could produce offsite doses in excess of Protective Action Guides (PAGs). No single specific accident sequence should be isolated as the one for which to plan because each accident could have different consequences, both in nature and degree. (emphasis added).

The emergency planning regulations therefore reflect careful consideration of a range of accidents and establish a prudent planning basis. The Intervenor's argument in ¶9 (pp. 91-92) of their proposed findings represents a thinly veiled challenge to the NRC's

^{8/} The Commission in San Onofre, CLI-83-10, 17 NRC at 533, wrote:

The regulation [10 C.F.R. 50.47] does not require dedication of resources to handle every possible accident that can be imagined. The concept of the regulation is that there should be core planning with sufficient planning flexibility to develop a reasonable ad hoc response to those very serious low probability accidents which could affect the general public.

exercise of discretion in the regulations establishing the necessary planning basis (see 10 C.F.R. § 50.47 (c)(2); 10 C.F.R. § 2.753). The regulations do not require explicit advance planning for all of the accident scenarios described in the final environmental statements. The Board must reject out of hand the Intervenor's suggestions that the planning basis is insufficient.

In ¶5 of their proposed findings (pp. 89-90), the Intervenor's question the testimony of Applicants' witness Neves on food supplies because the witness had not personally verified the existence of the supplies in the distributors' warehouses. Applicants addressed this point in their proposed findings (Apps. PFF (EPC 3), ¶9, p. 128). We note in this regard that an expert witness may rely upon hearsay in NRC proceedings. The only issue to be considered is whether the evidence is relevant, material, and reliable under 10 C.F.R. §2.743(c). (Duke Power Company (William B. McGuire Nuclear Station, Unit 1 and 2), ALAB-669, 15 NRC 453, 479 (1982)). We have found that Mr. Neves's testimony, based on figures prepared for him by local government officials, is credible (Tr. 671, Neves 5/3/84). There is no reason for the Board to require Mr. Neves to visit the food warehouses personally in order for the Board to be convinced of the existence of

the food supplies. Moreover, Intervenors have presented no evidence on the existence of food supplies contrary to Mr. Neves's testimony.

In ¶9 of their proposed findings, Intervenors also underestimate the emergency experience of the officials involved in the Catawba emergency planning effort. The Intervenors argue that the witnesses have experience only with emergencies in which "several hundred" people were sheltered. This assertion ignores the evidence of record, which indicates that Dennis Johnson of the Red Cross -- which will have responsibility for running the shelters -- has been personally involved in sheltering 52,000 refugees from the Nicaraguan civil war. He has also been involved in large sheltering operations in North and South Carolina related to recent tornados (Apps. Exh. EP-13, Johnson, p. 2; see also Apps. PFF (EPC 3), ¶4, pp. 125-126). We find the Intervenors' assertions concerning allegedly inadequate sheltering experience to be unpersuasive.

In ¶¶10-12 of their proposed findings (pp. 92-94), the Intervenors argue that the Applicants have failed to demonstrate sufficiently the ability of emergency planning officials to implement the emergency response plans. The Intervenors allege deficiencies in such areas as "staffing and logistical requirements" and "planning for the delivery of such resources to the shelters" (Ints. PFF, ¶10, p. 93). This argument fails for two reasons. First,

it lacks supporting citations to the record. Intervenors appear to be under the incorrect impression that a finding can be supported merely by reference to their own opening statement (Ints. PFF, ¶11, p. 93). Second, the Intervenors' argument that logistical details must be explained on the record runs contrary to the Appeal Board's guidance in Louisiana Power and Light Company (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1107 (1983). The details of implementation of the emergency plans are not necessary for this Board's finding of reasonable assurance that the plans can and will be implemented.^{9/}

In ¶¶13-20 (pp. 94-102), Intervenors question the reliance which the emergency plans place on the American Red Cross for shelter management. The record provides no basis for this concern. The Board notes that the Red

^{9/} Post-hearing review and confirmation of details of emergency response plan implementation is carried out routinely by the NRC Staff and FEMA. In that regard we note that the Staff in its proposed findings has asked this Board to explicitly condition its order granting authority for a full power license on confirmation of one specific corrective action regarding staff training and equipment for monitoring and decontamination in Gaston County (Staff PFF, p. 146). The Staff's proposed condition is premised upon an open item in the FEMA February 1984 exercise evaluation (Staff PFF, ¶13, p. 32). We find the Staff's proposed condition to be unnecessary. We assume as a basis for our entire decision that the NRC Staff and FEMA will carry out their post-hearing confirmatory duties with respect to plan implementation/verification. Those duties are independent from this hearing and should be carried out without our directive.

Cross, which has a long and distinguished history in the area of disaster relief, is the choice to manage emergency shelters. In addition, as discussed above, the record reflects that the Red Cross witness and disaster specialist, Dennis Johnson, is very experienced and extremely capable (Apps. Exh. EP-13, Johnson, pp. 1-6; see also Apps. PFF (EPC 3), ¶4, pp. 125-126). This Board therefore has reasonable assurance that the Red Cross will carry out its assigned duties in a professional and effective manner.

The Intervenors rely heavily on the rebuttal testimony of Red Cross employees Linda Anderson and Betty Long to make an argument that the emergency planning process for Catawba has been "derelict" and confused (Ints. PFF, ¶¶16-17, pp. 95-99). The Board does not agree. The Board has found that the testimony of Anderson and Long does indicate that the Red Cross review of shelters designated by North Carolina and South Carolina was not complete at the time of the hearing (Apps. PFF (EPC 3), ¶¶23-24, pp. 137-138). That review, however, does not need to be completed prior to our finding on the adequacy of the emergency plans (see Waterford, supra, ALAB-732, 17 NRC at 1103). Completion of the Red Cross review and designation of the final list of approved shelters can be verified as a post-hearing matter by the NRC Staff. The Intervenors have raised no compelling

argument why this Board should retain jurisdiction over such a detail of implementation. Moreover, the Board does not construe the Anderson and Long testimony as indicating a breakdown in the emergency planning process. On the contrary, the Board views the testimony as indicative of a normal planning process (Tr. 4469-4470, Anderson 6/8/84). The confirmatory review of shelters by the Red Cross gives us added assurance that the final designated shelters will be adequate in an emergency (Apps. PFF (EPC 3), ¶23, pp. 137-138; Staff PFF, ¶7, p. 27).

As an example of the alleged disorganization and confusion in planning, Intervenors point to the removal of York County shelters from the list of shelters in the emergency plans (Ints. PFF, ¶17, pp. 96-99). We are unpersuaded by this argument. Wherever shelters are found to be inadequate, as a result of the Red Cross confirmatory review, alternative shelters will be designated (Apps. PFF (EPC 3), ¶23, pp. 137-138). Any required changes in shelter designations will not, in our view, result in undue public confusion. A revised brochure, listing the current shelter designations, will be distributed to EPZ residents in the fall of 1984 (Apps. Exh. EP-7, Glover, p. 6).

Moreover, since it can reasonably be expected that shelter designations will be changed for a variety of reasons throughout the lifetime of the plant, Applicants'

brochure will therefore be updated and distributed annually to include new information (id; Apps. PFF (EPC 1 & 7), ¶9, p. 83). In addition, the emergency planning officials who testified on EPC 3 indicated that they were aware of the possibility of potential traffic problems caused by outdated shelter information, and accordingly plan to use traffic control personnel where necessary to direct evacuees to the open shelters (Apps. PFF (EPC 3), ¶24, p. 138). Current evacuation information will also be available for dissemination on the EBS network (Apps. Exh. EP-17, Glover, p. 1). In sum, the Applicants have planned to take every reasonable step to inform the public of the latest shelter status. In this regard, the Board also notes that the Intervenors have relied upon mere speculation to support their argument (see e.g., Ints. PFF, ¶17 p. 98.) The Intervenors' conjecture that, even though a revised brochure will be distributed, "the damage that has been done is likely serious and irreparable" is totally unfounded. The Intervenors point to no concrete evidence which would support this allegation, especially in the face of the positive steps planned by Applicants and emergency planning officials to avoid and mitigate confusion.

The Intervenors make similar allegations of confusion and traffic congestion with respect to the use of the University of North Carolina at Charlotte (UNC-C) as a

shelter in Mecklenburg County (Ints. PFF, ¶¶18-19, pp. 100-02). The Red Cross downgraded the capacity of the shelter to 5,000 (Tr. 849-50, Broome 5/4/84). However, we have found that there is adequate shelter capacity at UNC-C and at the 24 designated secondary shelters to accommodate Mecklenburg County's population in the event of an emergency (Apps. PFF (EPC 3), ¶29, p. 142). We decline to hold, as the Intervenors suggest, that county officials and the Red Cross have been derelict in their duties. Also, for the reasons discussed above, we decline to find that the downgrading of UNC-C's capacity will create undue traffic congestion.

In conclusion, the Board finds that the Intervenors' proposed findings raise no arguments which alter our decision on this contention. We reaffirm our acceptance of Applicants' proposed findings on EPC 3 and 6.

III. Emergency Planning Contention 8 -- Coordination of Emergency Response Activities

A. General Comments

In their proposed findings on EPC 8, Intervenors allege that Applicants and state and local emergency planning officials have not demonstrated that "effective assignments of primary and support responsibilities and the coordination of such response activities can and will be realized in the event of an actual radiological emergency at the Catawba facility" (Ints. PFF, ¶3, p. 105). In general, Intervenors find deficient the allocation of various responsibilities under the N.C. and S.C. emergency response plans and the legal bases for the assignment of such responsibilities. The Board finds that Intervenors' allegations are in many instances designed to confuse the record evidence on issues as to which the record is clear, and that these allegations are in all instances without merit.

Rather, we find that the record supports the Staff's conclusion with respect to EPC 8 that:

[T]he offsite emergency response plans for the Catawba plant satisfy the applicable planning standards in 10 C.F.R. §§50.47(b)(1), (6), (8) and (15) and requirements of Appendix E, as they bear on the issues here under consideration. The plans provide clear and effective assignments of primary and support responsibility, provide clear lines of authority and the legal basis therefor, provide for the necessary coordination among the responding States and counties, and subunits thereof, and provide for adequate means of primary and backup communica-

tions to permit effective implementation of such assignments, authorities, and coordination of functions.

(Staff PFF, ¶39, pp. 69-70). We further find that the North and South Carolina emergency response plans satisfy the evaluation criteria for NUREG-0654, Section II.A. In sum, none of the allegations raised in Intervenors' proposed findings alter the Board's decision to adopt as correct the conclusions set forth in Apps. PFF, ¶¶49-51, pp. 191-93, and in the Staff PFF, ¶39, pp. 69-70.

In ¶7 of their proposed findings on EPC 8 (pp. 106-07), Intervenors state that "the assignments of responsibility and coordination" of emergency response activities would be "at their weakest" during the first several hours after a radiological accident at Catawba. No evidence is cited to support this assertion. The Board finds that the record fails to corroborate Intervenors' allegation (see Apps. PFF, ¶¶10-18 (pp. 163-69); Staff PFF, ¶¶9-11 (pp. 50-53); 20-30 (pp. 60-64)).

B. No "Lead" State Designation Necessary

In ¶11 of their proposed findings (pp. 108-09), Intervenors allege that the fact that neither North nor South Carolina is labeled the "designated lead" state for radiological emergency response for Catawba confirms a "lack of coordination" and a "clear failure to demonstrate reasonable assurance that effective protective action can and will be taken at Catawba." The Board notes that this

is the first time Intervenors have raised this point. It is not mentioned in the language of EPC 8 and Intervenors made no reference to it during the hearing. Thus it is hardly surprising that there is no record testimony on this issue. Had Intervenors genuinely wished to pursue this question, they had ample opportunity to do so during the hearing. Having failed to do so, they should not now ask us to consider it.

An examination of Appendix 5 to NUREG-0654, which is a glossary of terms, reveals that the term "designated lead" is referred to in the definition of the "state organization" (one of the organizations assigned responsibilities under the NUREG):

The State government agency or office having the principal or lead role in emergency planning and preparedness. There may be more than one state involved, resulting in application of the evaluation criteria separately to more than one State. To the extent possible, however, one State should be designated lead.

Significantly, the planning standard and evaluation criteria applicable to EPC 8 (which are set forth in Section II.A. of NUREG-0654, dealing with "Assignment of Responsibility (Organization Control)") contain no reference to a "designated lead" state and impose no requirement that one particular state must be the "designated lead" in the assignment of emergency response roles to state organizations. The fact that the record does not indicate whether either North or South Carolina

has been formally chosen as the "designated lead" for Catawba emergency response does not, therefore, appear to constitute a violation of NUREG-0654. Moreover, the record demonstrates the extensive degree of coordination between North and South Carolina in their emergency response plans for Catawba (Apps. PFF, ¶¶8 (pp. 161-62), 13 (p. 165), 15 (pp. 166-167), 25 (1974); Staff PFF, ¶29-30, p. 64). Accordingly, the Board does not believe that this issue warrants further consideration.

C. Assignment of Responsibilities Under N.C. and S.C. Emergency Response Plans

1. South Carolina

In ¶¶12-72¹⁰/ (pp. 109-19), Intervenors argue that primary responsibilities have not been effectively assigned under the South Carolina emergency response plan (Apps. Exh. EP-2), and that such responsibilities are not supported by appropriate authority. In particular, Intervenors assert that there is "no adequate legal basis for the assignment of primary responsibility of York County officials to effect evacuation as a protective response during the critical early hours of an emergency at Catawba" (p. 113). The Board rejects this assertion, and

¹⁰/ Several of the paragraphs in this section of Intervenors' proposed findings are incorrectly numbered. We presume that ¶21 should be followed by ¶¶22-25, rather than by ¶¶72-75 (see Ints. PFF, pp. 118-20).

considers many of the arguments made in support of this position to be merely an attempt by Intervenors to confuse the record.

Citing South Carolina Legislative Act 199 (1979), which provides that only the governor or his successor may "direct and compel" evacuation (Staff PFF, ¶14, p. 55; Apps. PFF, ¶34, pp. 180-81), Intervenors urge the Board to interpret this language to mean that "the power to effect an evacuation is reserved under South Carolina law to the Governor of South Carolina" (Ints. PFF, ¶16, pp. 114-15). Under such an interpretation, they argue, local emergency planning authorities have no authority to evacuate the population during a radiological emergency. Such an interpretation is clearly inconsistent with the record testimony on this issue and with the positions taken by all of the N.C. and S.C. emergency planning officials. (See Apps. PFF, ¶¶31-35, pp. 178-82, for a discussion of the distinction that is drawn by these officials between "directing" and "compelling" evacuation.)

To further their argument that only the governor of South Carolina may "effect an evacuation" (an incorrect assumption based upon the fact that only the governor may "direct and compel" evacuation) and that there is thus "no adequate legal basis for the assignment of primary responsibility to York County officials to effect evacuation as a critical response during the critical

early hours of an emergency at Catawba," Intervenors refer to various provisions of the October 10, 1980 York County Ordinance, which designates certain emergency response duties to various York County officials (Ints. PFF, ¶16, p. 113). A careful review of this ordinance (included as pp. i-xi of the York County Emergency Operations Plan, which is part of Apps. Exh. EP-2), demonstrates, however, that there is no inconsistency between the governor's authority in this area and that delegated under the ordinance, because the local authority granted therein does not include the power to "direct and compel" evacuation. Thus there is no question as to the adequacy of the legal basis for assigning the limited local authority granted in the ordinance.

Specifically, the ordinance states in section VI(F) that the York County Council may "Direct evacuation of all or part of the population . . . if such action is deemed necessary . . ." (emphasis added). The Board does not read this grant of authority as encompassing the broad legal powers attendant to the governor's power to "direct and compel" evacuation. We agree with S.C. officials that the distinction to be drawn here is that only the governor has the legal authority to go beyond merely recommending or ordering or directing an evacuation to legally compel it (i.e., physically force residents to leave an area) (Apps. PFF, ¶35, pp. 181-82). This distinction was clear

to all of the South Carolina state and local emergency planning officials (id.), whose testimony demonstrates that they understood the limited nature of their authority versus that of the governor (Staff PFF, ¶18, p. 59).

The Board notes that the Staff, while recognizing that there appeared to be no confusion among S.C. emergency planning officials as to "the nature of their authority and the implications of these terms" (id.), believes that the S.C. and York County plans should be clarified on this point (id.). The Board does not agree that any amendment to the plans is necessary in this respect.

With respect to the York County plan, Intervenors also assert (¶16, p. 113) that there is "a confusing and ineffective assignment of primary responsibility to York County officials." Again, a careful reading of the 1980 York County Ordinance demonstrates that this is not the case. Contrary to Intervenors' statement on p. 112 of their proposed findings that the ordinance assigns responsibility for emergency response to the York County Council, we note that Section I of the ordinance establishes the Municipal-County Emergency Preparedness Agency to "insure the complete and efficient utilization" of county facilities in responding to enemy attack or

natural disaster." This agency is to be "the instrument through which the York County Council shall exercise this authority under the laws of this state."

This language indicates that the County Council has, appropriately, delegated specific emergency response responsibilities to those with expertise in this area. In particular, the actual hands-on responsibility for "directing the day-to-day operations of the [Emergency Preparedness] agency and coordinating the activities of various county and municipal governments during a period of disaster or emergency" is delegated in Section III of the ordinance to the Emergency Preparedness Coordinator, who is appointed by the County Manager. This Coordinator is specifically authorized to direct the agency "in the implementation of the provisions of this ordinance" (Section III). Rebuttal witness Harold Dickson, current Chairman of the York County Council, corroborated this assignment of responsibility (Tr. 4006, 4008-09, Dickson 6/6/84). The Board therefore concludes that responsibility for radiological emergency response in York County is clearly and effectively assigned by the ordinance.

This delegation of authority under the York County Ordinance also resolves the question raised by Intervenors in ¶15 of their proposed findings (p. 112), as to why the York County Council is not assigned primary responsibility

under the "Direction and Control" section of Annex Q to the York County Plan (Apps. Exh. EP-2, York County Plan, Annex Q, p. Q-12). Rather, the first organization listed there is the County Manager. While there appears to have been no testimony on this precise point, the Board assumes that although the County Manager appears first under the "Direction and Control" listing in Annex Q, the actual hands-on responsibility would be with the Coordinator of the Emergency Response Agency, who is appointed by the County Manager (see Tr. 4014-16, Dickson 6/6/84). We therefore see no conflict between the provisions of the York County Ordinance and the provisions of Annex Q of the York County plan.

Intervenors also cite in ¶16 of their proposed findings (pp. 113-14) the September 5, 1980 opinion of the S.C. Attorney General as evidence that there is "no adequate legal basis" for the assignment of responsibility to York County officials for accomplishing an evacuation during the first few hours after a radiological emergency (p. 113). The Board does not agree that this opinion precludes the delegation of some authority to local emergency planning officials, as the York County Ordinance in fact does. Rather, the Attorney General's opinion merely corroborates that local officials may not "direct and compel an evacuation," i.e., physically force people to leave under legal compulsion. Each of the S.C.

emergency planning officials who testified on this contention agreed that this was their understanding (Apps. PFF, ¶34-35, pp. 180-81; Staff PFF, ¶16-18, pp. 57-60). They viewed their authority as being limited to "directing" or "ordering" or "urging" evacuation.^{11/}

While these witnesses' usage of the terms "direct" and "order" was not intended to imply that they could legally force evacuation (Apps. PFF, ¶35, p. 181), the language used by these officials to describe the limits of their authority was unfortunately not identical to that used by the S. C. Attorney General; i.e., "warn or encourage" evacuation. However, we agree with the Applicants and the Staff that the distinction between the governor's authority and the more limited authority of other S.C. emergency planning officials, both at the state level and the local level, was clearly understood (Staff PFF, ¶18, pp. 58-59; Apps. PFF, ¶35, p. 181). Accordingly, we do not believe that SCORERP needs to be clarified in this respect.

With respect to the assignment of authority under the S.C. emergency response plan, we further note that in ¶8 of its proposed findings (pp. 49-50), the Staff asks us to

^{11/} Mr. Dickson's statement that he believed the York County ordinance has been "overruled by the Attorney General" (Tr. 4011, Dickson 6/6/84) appears incorrect. It is contradicted by the testimony of S.C. emergency planning officials. In fairness to Mr. Dickson, we note that he was not asked to clarify this statement during his testimony.

direct that SCORERP be amended to include reference to both the Director of the Division of Public Safety and the other individuals in the S.C. Governor's Office assigned emergency response functions. The Staff further indicates, however, that the failure to specifically list these individuals under the "Command and Control" heading (which currently lists only the "Office of the Governor" as the agency with primary responsibility for the command and control responsibilities in App. Exh. EP-2, Table 3, p. 55) does not prevent a finding of compliance with planning standard II.A. of NUREG-0654 (Staff PFF, ¶8, p. 50). Accordingly, the Board declines to order that such changes be made to the plan. The Division of Public Safety is a part of the Office of the Governor of South Carolina (Staff PFF, ¶8, p. 49), and we believe that the somewhat broader reference to the Office of the Governor in this connection provides adequate information while at the same time allowing some flexibility in the event that radiological emergency response functions were to be delegated to another group within the Office of the Governor.

In ¶18 of their proposed findings (pp. 115-16) Intervenor impugns the credibility of their rebuttal witness Harold Dickson because he "saw no contradiction in this obviously conflicting assignments of responsibility specified in the [York County] Plan" (p. 116). As we have

explained above, the assignments of responsibility under Annex Q of the York County Emergency Operations Plan do not conflict with those set forth in the October, 1980 York County Ordinance. We further note that since Mr. Dickson (and the York County Council) would not be actively involved in any radiological response efforts for York County, it is not necessary that he be familiar with the details of the emergency plans (Tr. 4007-4009, Dickson 6/6/84; see also Apps. PFF, ¶14, n.32, p. 166). Nor do we see why Mr. Dickson would have had any reason to participate in the Catawba exercise. Intervenors' criticism of Mr. Dickson on these points is unwarranted.

In ¶19 of their proposed findings (pp. 116-17), Intervenors cite the testimony of their subpoenaed rebuttal witness J. Elbert Pope as supporting their allegation that those organizations assigned emergency response roles under the York County Emergency Operations Plan are not familiar with their duties. Sheriff Pope testified that, because of other pressing obligations as county sheriff, he had delegated his responsibilities under the plan to his chief deputy (Apps. PFF, ¶47, p. 190), who had in turn familiarized himself with the York County plan and assumed the lead role in the county sheriff's office on radiological emergency response matters (id.). We note that although Sheriff Pope identified the individual in his office who is now

familiar with the role that the York County sheriff's office would play in such an emergency, Intervenors did not attempt to subpoena this deputy. We have no reason to doubt that this individual understands his organization's responsibilities in the event of a radiological accident at Catawba.

a. Legal Authority of S.C. Governor to Exercise "Command and Control" Powers

In ¶¶21-72 (pp. 117-19), Intervenors argue that because of the legal structure of South Carolina government, the Office of the Governor is not "legally empowered to exercise the command and control responsibilities assigned to it under the South Carolina Plan" (p. 118), and that there has been no showing that "anyone is in charge at a particular point in time" (pp. 118-19). Intervenors further allege that since "the only clear legal foundation for assignment of such command authority rests upon the Governor only after his declaration of an emergency," the "Catawba Plan's assignments of responsibility otherwise are ineffective and without appropriate legal authority" (p. 119). No explanatory citations or other evidence are provided in support of this rather confusing allegation.

In response to this assertion, we note, first, that the record does not support a charge that the Office of the Governor lacks the legal authority to exercise command and control responsibilities (App. PFF, ¶¶36-39, pp. 182-

184; Staff PFF, ¶¶8, 19, pp. 49-50, 60). Second, the record does not support a charge that no particular person is in charge at any given time during an emergency (Apps. PFF, ¶¶38-40, pp. 183-85; ¶44, p. 187-88). Indeed, Mr. Frank Sanders^{12/} testified that the chain of command on emergency response matters is clear in the S.C. emergency response plan, is clearly understood by those officials involved, and has been demonstrated to function effectively in past disasters (Apps. PFF, ¶39, p. 184). Third, we reject the assertion that the Governor of South Carolina may not assign emergency response authority until after his declaration of an emergency. Some citation of authority by Intervenors on this point would have been helpful to the Board in assessing this assertion. Finally, we do not agree that the assignments of authority under the S.C. plan lack "appropriate legal authority." In sum, we reject the arguments made in ¶¶21-72 as without record support.

2. North Carolina

In ¶¶73 [sic]-29 of their proposed findings (pp. 119-23), Intervenors similarly assert that the assignment of primary responsibility to North Carolina local emergency planning officials during the initial period after a radiological accident is "untenable" because there is no legal basis for granting such officials the power to

^{12/} Mr. Sanders is the Director of the Division of Public Safety in the S.C. Governor's Office.

"effect an evacuation" (p. 121). Intervenors argue that the statutory authority that authorizes the Governor of North Carolina to "direct and compel" evacuation "excludes any implied extensions of the same authority to others not of the Governor's statute or delineated with the procedural restrictions applicable to him" (p. 121). The record does not support this assertion.

This allegation, like that made with respect to the S.C. plan, appears to be an attempt to create confusion on the record where none exists. North Carolina officials view compelling evacuation as an extraordinary action properly reserved to the highest elected official of the state (Tr. 4202, Pugh 6/7/84). Contrary to Intervenors' statement in ¶29, p. 123, the power given to North Carolina state and county emergency planning officials other than the governor to effect an emergency evacuation is not the same degree of legal authority as that afforded the governor under the North Carolina Emergency Management Act of 1977 (Apps. Exh. EP-1, Part 1, Attachment 1, section A.5.b.1). The extensive cross-examination conducted by Intervenors on this precise point clearly demonstrated this distinction. The testimony explaining the distinction between the governor's extraordinary power to "direct and compel" evacuation (i.e., to physically force people to evacuate), and the general power of the state and county officials to "order" or "recommend" an

evacuation in North Carolina is summarized in the proposed findings submitted by the Applicants and the NRC Staff (see Apps. PFF, ¶¶32-33, pp. 179-80; Staff PFF, ¶¶13, 15-16, 18, pp. 54-55, 56-57, 59-60). The limits of the counties' authority appeared to be clear to everyone except the Intervenors, since all of the witnesses agreed that while county officials could recommend or encourage residents to evacuate, they could not force or compel them to do so (Tr. 2988, Harris 6/5/84; Tr. 4202, 4233, Pugh 6/7/84; Apps. Exh. EP-21, Pugh and Harris, pp. 5-6).

3. Conclusion

The Board does not view any of the issues raised by Intervenors concerning assignment of responsibilities under the North Carolina and South Carolina emergency response plans as valid. Similarly, we reject as unsupported by record evidence Intervenors' arguments that appropriate legal authority does not exist for the assignment of such responsibilities (in particular, the authority to direct or recommend evacuation during the period before the states take over) under the plans. Any confusion that exists in this issue was created by Intervenors, not by the witnesses (see Apps. PFF, ¶35, p. 182; Staff PFF, ¶19, p. 60). We therefore conclude that the North Carolina and South Carolina plans assign clear and effective primary and support responsibilities for radiological emergency response, that adequate and proper

legal authority for such assignments exists, that the nature and extent of the legal authority delegated to state and local officials is clearly understood by such officials, and that these assignments of responsibility satisfy applicable Commission requirements.

D. Testimony by FEMA Witnesses

The Intervenors conclude their proposed findings on EPC 8 with a generalized attack on the FEMA witnesses and on the emergency planning exercise held at Catawba in February 1984 (see Ints. PFF, ¶¶30-34, pp. 123-26). The Intervenors' diatribe is essentially devoid of relevant citations to record evidence, and thus lacks persuasive force. Indeed, one of the main documents quoted for support by Intervenors in this section was refused admission into evidence (see Ints. PFF, ¶34, p. 125). Once again the Board must rebuke the Intervenors for improperly asking this Board to rely on documents that are not in evidence and that were offered without a sponsoring witness who was subject to cross-examination by the parties.

Under the NRC's regulations, FEMA's findings (interim and final) are entitled to a rebuttable presumption of correctness (10 C.F.R. §50.47(a)(2); Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 & 3), LBP-82-39, 15 NRC 1163, 1212 n.33 (1982), aff'd, ALAB-717, 17 NRC 346 (1983)). FEMA's interim findings

were admitted into evidence by this Board (Staff Exh. EP-3). The FEMA witnesses presented prefiled testimony (Staff Exh. EP-2) and were examined by the parties (primarily by the two Intervenors) for a full day (Tr. 1460-1671, 5/9/84). Nothing discussed in the Intervenors' proposed findings casts doubt on the testimony or interim findings presented by FEMA, and thus the presumption to which FEMA's findings are entitled stands unrebutted.

The testimony presented by FEMA on EPC 8 supports the Applicants' and the Staff's position that the contention is without merit (see Staff Exh. EP-2, Heard and Hawkins, pp. 15, 17-18; see Apps. PFF, ¶7, pp. 161-62; see also Staff PFF, ¶37-39, pp. 68-70). Indeed, the FEMA witnesses affirmed that during the February exercise:

The two states worked together quite well and demonstrated an efficient and cooperative relationship throughout the planning and implementation of the exercise.

(Tr. 1660-61, McGarry and Heard 5/9/84).

FEMA's review of the emergency plans and the exercise was done in accordance with 10 C.F.R. §50.47(a)(2). Intervenors' criticisms of FEMA's contribution to the hearings stems from an apparent misunderstanding of the nature of FEMA's role, which involves making:

findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented. A FEMA finding will primarily be based on a review of the plans. Any other information already available to FEMA may

be considered in assessing whether there is reasonable assurance that the plans can be implemented.

(10 C.F.R. §50.47(a)(2)). This Board finds that FEMA's testimony and findings provide additional support for rejecting the Intervenor's contentions, including EPC 8.

E. Clarification of Staff Findings

There are several minor inaccuracies in the Staff's proposed findings on EPC 8 that require clarification. First, the Staff's proposed findings on the point at which the SEOC is established are somewhat confusing. In ¶11 (p. 52), the Staff states that the "establishment of the SEOC must be accompanied by the Governor's declaration of a state of emergency." Again on p. 53, the Staff reiterates that "both the SEOC and FEOC can only be established pursuant to the Governor's declaration of a state of emergency." Testimony on this point established that while the SEOC is formally opened by the S.C. Governor's declaration of an emergency (Apps. EP-21, Lunsford and McSwain, pp. 6-9; Tr. 3006-07, Lunsford and McSwain 6/5/84), SEOC headquarters would have been physically opened and SEOC staff called in prior to that point. Once these resources are in place, SEOC is ready to become operational, and is then formally opened (Apps. PFF, ¶20, pp. 170-71; Tr. 3006, Lunsford 6/5/84; Apps. Exh. EP-21, Lunsford and McSwain, pp. 3-4).

In addition, in ¶14 (p. 56), the Staff refers to the necessity of the Governor of South Carolina consulting with the Council of State on an order to compel evacuation. No such consultation is necessary in South Carolina. It is, however, necessary before the Governor of North Carolina may legally compel evacuation (see Apps. PFF, ¶¶32-33, pp. 179-80).

IV. Emergency Planning Contention 9 --
Public Notification

Throughout their proposed findings on this contention, Intervenors raise essentially two arguments. First, Intervenors assert that this Board must retain jurisdiction over several aspects of emergency planning pending completion of either the planning process or the FEMA review. This argument fails to recognize the important point that emergency planning is by nature a continuing process. Planning and implementation will take place throughout the life of the plant and long after this Board has relinquished jurisdiction. The Board's 10 C.F.R. §50.47(a) finding is necessarily a predictive finding of reasonable assurance that a plan can and will be implemented (see Louisiana Power & Light Co. (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103-1104 (1983)). Based on the current state of emergency planning and the record before us, this Board is satisfied that emergency planning for Catawba meets or will meet all regulatory requirements prior to full power

operation. Complete implementation or verification of minor items can be left to the NRC Staff and/or FEMA as a post-hearing matter. This Board does not need to retain jurisdiction.

Second, the Intervenors continue to seek the installation of a public notification system that exceeds both the regulatory guidance of FEMA-43, Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants (September 1983), and a rule of reason. We note that FEMA-43 does not require that 100% of the population within the EPZ actually hear prompt alerting sirens under all circumstances. Instead, the guidance provided by FEMA-43 takes into account factors which affect sound propagation and attempts to establish a standard for sirens which will result in prudent risk reduction. Such a standard is consistent with the Commission's concept of emergency planning as expressed in Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 & 3), CLI-83-10, 17 NRC 528, 533 (1983). The Board is satisfied with Applicants' planning for public notification in general and with the Catawba prompt alerting sirens in particular.

We now turn to the specific points raised by the Intervenors in their proposed finding of fact on EPC 9. In ¶1 of the findings (pp. 127-28), the Intervenors summarize the two arguments discussed above. They first

assert that there has been no demonstration that all citizens will actually hear the sirens or otherwise receive prompt alerting, and then allege that a finding by this Board on emergency planning is premature because the FEMA review is incomplete. We find these complaints to be without merit. The Applicants have met their burden of proof by demonstrating on the record that the siren system for Catawba meets the regulatory guidance of NUREG-0654, Appendix 3, and FEMA-43 (Apps. PFF, ¶¶5-9, pp. 197-200; see also Staff PFF, ¶¶9-11, pp. 73-74). The siren system does not, and is not required, to guarantee that 100% of the population will hear the sirens (Apps. PFF, ¶¶10-13, pp. 200-203; Staff PFF, ¶12, pp. 74-75); accord, Kansas Gas & Electric Co. (Wolf Creek Generating Station, Unit 1), LBP-84-___, 20 NRC ___, slip op. at 63, ¶23 (July 2, 1984)). The Board finds reasonable assurance that essentially 100% of the population within the EPZ will be promptly alerted either by the sirens or by one of several supplemental means of notification (Apps. PFF, ¶¶14-17, pp. 203-205; Staff PFF, ¶¶28-37, pp. 80-83).

In ¶5 (pp. 132-33), Intervenor's allege that the Applicants have somehow failed in their burden of proof on this contention because FEMA has not completed its evaluation of the siren system. Again, we find this argument to be unpersuasive. The Applicants have, on the record of this proceeding, demonstrated to the satisfaction of this Board that the

regulatory requirements for public notification have been met. The fact that the FEMA review and testing of the sirens has not been completed does not affect our decision (Staff PFF, ¶12, pp. 74-75). The Appeal Board has held that installation and testing of a siren system are not necessary prior to a licensing board's predictive finding on emergency planning (Louisiana Power and Light Co. (Waterford Steam Electric Station, Unit 3), 17 NRC 1076, 1104-05 (1983)). We can therefore leave the ministerial tasks of testing and verification of the sirens (including the FEMA statistical survey of the plume EPZ populace referred to by the Intervenor) to FEMA and the NRC Staff.^{13/} The record as it stands is sufficient to resolve the Intervenor's contention.

In ¶¶7, 8, and 9 of their proposed findings (pp. 134-36), the Intervenor raise arguments related to the various technical limitations of siren notification. These arguments again rephrase the 100% notification issue that has been addressed above (see Apps. PFF, ¶¶10-18, pp. 200-06). The Intervenor conclude in ¶10 of their findings (p. 136), that an "empirical measurement" of the limitations on siren audibility is necessary. This recommendation simply exceeds what is required by

^{13/} The Board notes that in ¶5 of Intervenor's proposed findings, the Intervenor attempt to make an argument based upon certain survey results not in evidence. Such arguments are improper, and can form no basis for our decision.

regulation. The Applicants, through their consultant Acoustics Technology Inc., have already demonstrated compliance of their siren system with FEMA-43 (Apps. PFF, ¶¶5-9, pp. 197-200). FEMA-43 guidance was drafted with the limitations of sirens in mind, including weather conditions and the fact that many people may be indoors. If FEMA-43 is met, further demonstrations or "empirical measurements" by the Applicants of the effectiveness of sirens are not required (Apps. PFF, ¶¶11, 13, 17, pp. 200-01, 202, 204-05; Staff PFF, ¶27, pp. 79-80).

Intervenors' final concern, set forth in ¶¶16-17 of their proposed findings (pp. 139-40), relates to notification of the Carowinds theme park and Heritage U.S.A. religious retreat. They argue that the state of planning for these facilities as reflected on the record is not sufficient for the Board to close the record. We disagree. In the Waterford case cited above, the Appeal Board explicitly stated that licensing boards need not await development of specific implementing procedures for the various aspects of an emergency plan prior to making a reasonable assurance finding (Waterford, ALAB-732, 17 NRC at 1106-1107). Hearings on such planning details were never intended by the Commission. The hearing record can be closed and findings made if the record adequately

reflects the planning efforts which are being undertaken by the applicants and the local officials, even if the effort will not be completed until after the hearing.

In this case the record demonstrates that plans have been developed for notification and evacuation of Carowinds and Heritage U.S.A. We have concluded, in agreement with the Applicants' and the Staff's proposed findings, that the plans are adequate to give us reasonable assurance that the facilities will be timely notified and that the public can be evacuated (Apps. PFF, ¶¶26-30, pp. 211-214; Staff PFF, ¶¶38-42, pp. 83-84; see also Apps. PFF (EPC 14 & 15), ¶¶80-87 pp. 326-31). The fact that local officials are continuing to work to improve the plans and to develop specific implementing procedures does not alter our conclusion. We trust that the NRC Staff can verify prior to full power operation that necessary implementing procedures are completed. We also encourage responsible local officials to continue their efforts to improve the plans and procedures throughout the operational life of the Catawba plant.

In conclusion, we find that the Intervenor's proposed findings of fact on EPC 9 raise no arguments which alter our decision that this contention is without merit.

V. Emergency Planning Contention 11 -- Expansion of the Plume EPZ into Southwest Charlotte

The Intervenor's proposed findings on Emergency Planning Contention 11 (EPC 11) are characterized by the same selective citation and quotation of the record found elsewhere in their proposed findings, with many references being taken out of context. Thus their proposed findings on EPC 11 do not attempt to synthesize the entire relevant record developed during these hearings, but instead focus on limited matters removed from the perspective of their factual context, while ignoring significant portions of testimony (e.g., the entire direct case presented by the NRC Staff through four expert witnesses). This Board will not attempt to address every error or misstatement contained in the Intervenor's filing. Instead we focus on those significant matters which require clarification and correction in light of the Intervenor's apparent efforts to obscure the issues and the record.

A. Background

The background history and overall perspective on EPC 11 are summarized in the proposed findings submitted by the Applicants (see Apps. PFF, ¶¶1-6, pp. 216-20). The Intervenor's summary section, which quotes from the original Licensing Board's September 29, 1983 Order, is most notable not for what it says, but for what it fails to say (see Ints. PFF, ¶¶3-6, pp. 141-43, quoting

selectively from "Memorandum and Order (Ruling on Remaining Emergency Planning Contentions)," slip op. (Sept. 29, 1983)("September 29th Order"). The Intervenor's have mischaracterized the prior rulings of the Licensing Board, as described below.

In paragraph five of their proposed findings on EPC 11, the Intervenor's carefully omitted two sentences wherein the original Licensing Board: (1) acknowledged there to be merit to the Applicants' and Staff's arguments that meteorology was already accounted for in the plume EPZ radius standard of "about 10-miles;" and (2) recognized that the rule, 10 C.F.R. §50.47(c)(2), does not acknowledge site meteorology as a factor relevant to the size of the plume EPZ (cf. Ints. PFF, ¶5, p. 142). Indeed, comparison of the original Order with the Intervenor's selected language demonstrates the original intent of the Board (compare September 29th Order at 3-5 with Ints. PFF, ¶5, p. 142).

Intervenor's assert that the Board admitted EPC 11, "accepting meteorology [sic] as a legitimate factor" (Ints. PFF, ¶6, p. 142). This short clause does not accurately represent the action taken by the original Licensing Board in allowing litigation of the Catawba site's meteorology under EPC 11. The Board noted (in the language quoted by

Intervenors in Ints. PFF, ¶5, p. 142) that meteorology is one of the relevant local conditions that presumably could be considered, but then explained further:

There is no clear answer to this legal question [whether meteorological conditions are a permissible consideration in determining the boundary for the plume EPZ]. We will resolve the doubt for now in favor of allowing consideration of meteorological conditions under the revised contention [EPC 11] we are admitting as set forth below, at least for discovery purposes. If the Applicants or Staff can show at the summary disposition stage that the NUREG-0396 study of meteorological conditions included appropriate consideration of the most unfavorable conditions that might reasonably be anticipated at Catawba -- i.e., that the study "envelopes" Catawba conditions -- such a showing presumably would preclude any further consideration of meteorological conditions under this contention.

(September 29th Order at 4).

Far from "accepting meteorology [sic] as a legitimate factor," as Intervenors assert, the Board invited a demonstration by the parties to show that meteorological conditions had already been accounted for in NUREG-0396 in establishing the plume EPZ radius at about ten miles (id.). Such a demonstration has in fact been made, not at the summary disposition stage, but at the hearings on this contention. The testimony of the NRC Staff's experts explicitly concludes that the meteorology of the Catawba site falls within the parameters of the conditions evaluated in NUREG-0396 for establishing the "about 10-miles" standard of §50.47(c)(2). This is fully explained

in the Applicants' proposed findings (Apps. PFF, ¶¶70-76, pp. 260-65) and the NRC Staff's proposed findings (Staff PFF, ¶¶5-20, pp. 87-94).

The NRC Staff's expert analysis, using Catawba's meteorology, shows that use of a ten-mile plume EPZ at Catawba is conservative from a radiological standpoint (Staff PFF, ¶¶21-24, pp. 94-95). Additionally, testimony and analyses by the Applicants' expert, Mr. Potter, demonstrate that the meteorological conditions present at the Catawba site would not create the potential of accident consequences more severe than those contemplated in NUREG-0396 (see Apps. PFF, ¶¶20-40, pp. 228-41; Staff PFF, ¶¶25-33, pp. 95-100). Indeed, even if this Board were to consider the specifics of Catawba's meteorology, testimony by the Staff's and the Applicants' meteorologists demonstrates that there is nothing exceptional about Catawba's meteorology (see Apps. PFF, ¶¶78-82, pp. 265-69; Staff PFF, ¶¶14-19, pp. 91-93). Thus, the meteorology of the Catawba site provides no basis for altering the size of the plume EPZ.

Finally, the Board notes that the Intervenors have significantly failed to mention important parts of the original Licensing Board's concluding discussion of EPC 11 in the September 29th Order:

In revising and admitting this contention, we stress that we are not now making any factual findings with reference to its various theses. We merely determine that the Intervenors are

entitled to an opportunity to prove those theses.^{14/} The proof may eventually show that the present plume EPZ boundary was appropriately determined by State and local officials. That determination cannot be made with scientific precision, given the nature of the factors listed in the rule. Rather, it necessarily involves large elements of judgment. See Southern California Edison Co. (San Onofre Station), 15 NRC 1163, 1180-1182 (1982). This means that the scope of our review on this issue should be relatively narrow.

(September 29th Order at 5).

Intervenors attempt to turn this language on its head in their proposed findings (see Ints. PFF, ¶¶10-11, pp. 144-45). This Board, however, adheres to this reasoned ruling of the original Licensing Board. As demonstrated in the proposed findings of the Applicants and the NRC Staff, the expert testimony and other evidence adduced at the hearings support the plume EPZ boundaries as currently established. Accordingly, the Board properly defers to the judgment of the highly qualified emergency planning officials who established the plume EPZ boundaries (see

^{14/} In light of this statement by the Board, the Intervenors' claim that the Board "reaffirmed the factual considerations supporting" EPC 11 is clearly erroneous (see Ints. PFF, ¶8, p. 144). One cannot reaffirm that which has never been affirmed. Indeed, in the December 30, 1983 Order to which the Intervenors refer, the Board again carefully disclaimed making any judgment on the merits of EPC 11 (see "Memorandum and Order (Denying Applicants' Motion for Reconsideration Concerning Revised Emergency Planning Contention 11)," slip op. (Dec. 30, 1983)).

Apps. PFF, ¶¶5-6, pp. 219-20). Nothing presented in the Intervenor's proposed findings demonstrates that the allegations raised in EPC 11 possess any merit.

B. The Demography of Southwest Charlotte

The Intervenor's proposed findings create the erroneous impression that a significant portion of the population of the city of Charlotte is clustered just outside the plume EPZ boundary (see, e.g., Ints. PFF, ¶¶10, 13, 51, 53, pp. 144-45, 164-65). However, the fact that the city limits come, at the closest, within 9.7 or 9.8 miles of the plant, at one relatively sparsely populated point, does not mean that a crowded, bustling sector of town is perched on the edge of the plume EPZ (see Tr. 344, Glover 5/2/84; Ints. Exh. EP-43). Indeed, one of the NRC Staff's experts who personally toured the plume EPZ and the portions of Charlotte in controversy concluded that there was not a sufficient population adjoining the plume EPZ in southwest Charlotte to merit extension of the existing boundary (see Tr. 2632, Robinson 5/25/84; Staff Exh. EP-5, Robinson, p. 23).

The evidence of record demonstrates that the population density outside the plume EPZ, in the most populous sector, does not exceed 2000 people per square mile until reaching fourteen miles from the plant (see Ints. Exh. EP-43). The highest population density in any sector of Charlotte is 3395 people per square mile, found

in the NE sector at sixteen to seventeen miles from the plant (id.). Thus, contrary to the implication that the Intervenors attempt to create, significant urban populations in Charlotte are not encountered until well outside the current plume EPZ boundary of "about 10 miles." The demographic evidence is aptly summarized in the Applicants' and the NRC Staff's proposed findings (see Apps. PFF, ¶84-85, pp. 270-71; Staff PFF, ¶¶43-51, pp. 103-06).

C. Wind Frequency/Population "Risk" Calculations

The Intervenors argue that Applicants are attempting to "obscure the uniqueness" of the Catawba site by treating meteorology and population separately in the testimony of Messrs. Edmonds and Casper (see Ints. PFF, ¶15, p. 146). The record does not support this assertion. On the contrary, it is the Intervenors who, by relying on oversimplified calculations, obscure the facts.

As explained in Applicants' proposed findings, Mr. Riley's simple "risk" calculations ignore all of the population surrounding Catawba and other sites in the fifteen sectors besides the one most populous sector. When the entire population around Catawba and the other various nuclear plant sites and the wind frequencies in all directions are considered, using a more sophisticated and representative analysis, Catawba "ranks" not as number one, but tenth or eleventh on a wind frequency/population

"risk" calculation conducted by Sandia National Laboratories (see Apps. PFF, ¶¶79-80, pp. 266-67; Tr. 2180-81, Edmonds and Casper 5/23/84, citing NUREG/CR-2239, pp. D-55 to D-56, Table D.3-1, column WRSPF20).
Intervenors neglect to mention this fact.^{15/} In any event, regardless of the position of Catawba on any population or risk list, the Catawba site is still within the regulatory requirements and guidance promulgated by the NRC (Tr. 2181-83, Potter, Edmonds, Casper, and Glover 5/23/84).

The Board reemphasizes, as noted above, that site meteorology is not a relevant consideration in determining the size of the plume EPZ. The Intervenors' selective citations to NUREG-0396 are not to the contrary (see Ints. PFF, ¶18, p. 148). As demonstrated by the testimony of the NRC Staff's experts, the analysis in NUREG-0396 has already factored in meteorology and assumes a "worst case" downwind location for the population around the plant site. That is, the NUREG-0396 analysis was wind-direction independent, i.e., doses are calculated assuming the

^{15/} Additionally, Intervenors do not use the best available wind frequency data for this calculation. Use of the most representative data, even with Intervenors' unrepresentative single-sector calculation, would place Indian Point above Catawba, contrary to Ints. PFF, ¶15, p. 146 (see, e.g., Tr. 2675-77, 2678-80, Fairbent 5/25/84; Tr. 2037-38, Casper 5/23/84; Tr. 2213-14, Edmonds 5/23/84). E.g., Catawba (13.5% x 140,455) is less than Indian Point (13.5% x 176,083) (see Apps. Exh. EP-19, Edmonds, p. 7; id., Casper, pp. 11, 13).

observer is always directly downwind of any release. Thus the meteorology at Catawba or any other site is irrelevant to the size of the plume EPZ (see Apps. PFF, ¶¶70-76, pp. 260-65; Staff PFF, ¶¶5-20, pp. 87-94).

Significantly, the site-specific analysis conducted by Mr. Potter, using actual Catawba meteorological data, show that the projected radiation doses in the event of an accident at Catawba are within the ranges approved in NUREG-0396, which was used as the basis for establishing the plume EPZ radius at "about 10 miles" (see Apps. PFF, ¶¶20-40, pp. 228-41; Staff PFF, ¶¶21-33, pp. 94-100). Thus the Applicants and NRC Staff have both already evaluated the "meteorological [sic] forces of wind direction, speed and atmospheric conditions" such as is advocated by the Intervenors (see Ints. PFF, ¶16, pp. 146-47). This evidence, as described above and in the proposed findings filed by the Applicants and the Staff, supports retention of the current plume EPZ boundaries.

D. The Catawba Final Environmental Statement

The Intervenors attempt to make much of the NRC Staff's estimation of the possible environmental impacts from extremely low probability severe accidents, contained in the Catawba Final Environmental Statement, NUREG-0921, January 1983 ("FES") (see, e.g., Int. PFF ¶¶14, 17, pp.

145-46, 147-48, 156-59). This constitutes yet another example of Intervenors' selective, and hence inaccurate, citation to the record.

The Intervenors cite repeatedly the potential number of radiation exposures and early fatalities in the event of a hypothetical "worst case" accident, but they avoid mention of the associated "exceedingly low probability of occurrence" (see, e.g., FES, p. 5-26). Indeed, Intervenors fail to mention that the FES's 270,000 persons exposed to over 25 rem, cited frequently by Intervenors, has a probability of occurrence of 1×10^{-8} per reactor year (i.e., one chance in one hundred million per reactor year) (see FES, p. 5-81). Even given a core melt, which has an estimated probability of 6×10^{-5} (Apps. Exh. EP-19, Potter Attachment B, p. 8), the probability that any given core melt accident would result in consequences this severe is only 2×10^{-4} (i.e., only 2 out of every 10,000 core melt accidents at Catawba would lead to exposing 270,000 persons with over 25 rems).^{16/}

Mr. Riley's refusal to accept the accident probabilities as part of the "risk" analysis has been previously addressed in Applicants' proposed findings (see

^{16/} The overall probability for the most severe accident, divided by the core melt probability, gives the probability that any given core melt will result in the most severe accident cited by Intervenors:

$$1 \times 10^{-8} \text{ divided by } 6 \times 10^{-5} = 1.67 \times 10^{-4} \text{ which rounds to } 2 \times 10^{-4}$$

Apps. PFF, ¶67, pp. 258-59). This Board agrees with the Hearing Board in the Indian Point special proceeding that not only potential consequences, but also the probability of their occurrence need to be considered together to evaluate risk realistically (see Consolidated Edison Co. of N.Y. et al. (Indian Point, Units 2 & 3), CLI-81-23, 14 NRC 610, 612 (1981), quoting Statement of Interim Policy on "Nuclear Power Plant Accident Considerations under the National Environmental Policy Act of 1969," 44 Fed. Reg. 40,101 (June 13, 1980))). There is no evidence in the record of this proceeding that causes the Board to disregard the accident probabilities testified to by the Applicants' and the Staff's experts (see Apps. PFF, ¶67, pp. 258-59; Staff PFF, ¶¶ 39-40, p. 102).

Aside from disregarding the extremely low severe accident probabilities, Intervenors also misuse the data contained in the FES by equating it to what could actually be expected in the event of a severe accident at Catawba (see, e.g., Ints. PFF, ¶¶35-40, pp. 156-59). Indeed, the 24,000 early radiation fatalities cited by the Intervenors (see, e.g., Ints. PFF, ¶¶17, 37, pp. 147, 157),^{17/} which represents the projected consequences of a worst-case accident with an overall probability of 1×10^{-8} per reactor

^{17/} The pages in the FES cited by Intervenors (pp. 5-81 and 5-82) lists 19,000 early fatalities. Presumably Intervenors drew their 24,000 figure from page F-4 of the FES.

year, does not accurately account for the sort of emergency response that would actually be taken in response to an accident of this magnitude. To arrive at this "worst case" figure, the FES assumed no emergency response at all beyond ten miles from the plant for a full twenty-four hours after plume passage (Tr. 2194-95, Potter 5/23/84; Staff Exh. EP-5, Soffer, pp. 14-16).

"Ad hoc" emergency response (such as early relocation), as contemplated in NUREG-0654 for areas outside the plume EPZ, would greatly reduce the amount of exposure and the number of early fatalities and the number of individuals requiring medical treatment (see FES, pp. F-2 to F-3; see also Tr. 2194-96, Potter and Broome 5/23/84; Apps. Exh. EP-19, Glover pp. 8-9). Such early relocation can be carried out in southwest Charlotte under the existing All-Hazards Plan in roughly seven hours from the time the emergency is declared at the plant. This is faster than the eight-hour relocation time on which the FES is based (Tr. 2194-96, Potter and Broome 5/23/84; Apps. Exh. EP-19, Broome, pp. 9-12; FES, p. 4). Thus the sort of emergency response which the Intervenors argue that the FES requires is already achievable without extending the plume EPZ.

The Intervenors' quotation from the FES concerning the need for emergency response beyond the plume EPZ in the event of a severe accident establishes nothing unique

about the Catawba site compared to any nuclear site in the nation (see Int. PFF ¶37, p. 157). Indeed, NUREG-0396, which contains the technical basis for establishing a plume EPZ radius of "about 10 miles," fully recognizes that emergency response would be necessary beyond ten miles in the event of the worst accidents. Yet NUREG-0396 just as clearly states that emergency planning should not be required beyond ten miles (Tr. 2693, Soffer 5/25/84). "Ad hoc" response beyond ten miles is sufficient (Apps. Exh. EP-19, Glover, pp. 8-9). The fact that through the All-Hazards Plan Charlotte is already capable of better than simply "ad hoc" response provides further assurance that the plume EPZ need not be extended to encompass the southwest part of the city (see, e.g., id., Glover, pp. 9-10).

In any event, the Board recognizes that the FES was not written as an emergency planning tool. The Intervenor's arguments based on this document do not alter this Board's confidence in the analyses conducted by the Applicants' and the NRC Staff's experts, which demonstrate that the plume EPZ should not be extended into southwest Charlotte.

E. Mr. Potter's Analysis

The Intervenor's challenge the analysis conducted by Applicants' expert consultant, Mr. Potter (see Ints. PFF, ¶¶20-33, pp. 150-55). The Intervenor's proposed findings

contain several misstatements of the record as well as unsupported allegations, some of which are addressed below. No new matters have been raised, however, that would call into question the propriety of this Board crediting Mr. Potter's testimony and analyses over Mr. Sholly's presentation. The relevant testimony is summarized in the proposed findings filed by the Applicants and the NRC Staff (see Apps. PFF, ¶¶20-40, pp. 228-41; Staff PFF, ¶¶25-42, pp. 95-103). Several specific inaccuracies in the Intervenors' proposed findings are addressed below.

Contrary to the Intervenors' allegations, Mr. Potter did not "reject" the Sequoyah RSSMAP as a data base (see Ints. PFF, ¶24, pp. 150-51). Indeed, the Sequoyah RSSMAP confirmed the core-melt probability and was useful for modelling releases where the hydrogen mitigation system was inoperative (Tr. 2074-75, Potter 5/23/84; see also Staff PFF, ¶31, p. 99).

As described in the Applicants' and the Staff's proposed findings, Mr. Potter could not use the unadjusted Sequoyah RSSMAP release categories and probabilities, for they would be misleading in that they fail to account for the hydrogen mitigation system such as is present at Catawba (Apps. PFF, ¶¶28-29, pp. 232-33; Staff PFF, ¶30.5, pp. 98-99). Mr. Potter thus evaluated the impact of the hydrogen mitigation system at Catawba and calculated the

impact of such a system on the Sequoyah RSSMAP data. The modified Sequoyah RSSMAP release category probabilities were very close to those in WASH-1400, so Mr. Potter used the essentially identical WASH-1400 distribution for his analysis (see Apps. PFF, ¶¶30-32, pp. 234-36).

Intervenors' proposed findings provide no basis for questioning Mr. Potter's treatment of the hydrogen mitigation system (see Ints. PFF, ¶¶26-29, pp. 151-53). Mr. Potter appropriately consulted the available technical study, evaluating the operability of the hydrogen mitigation system.^{18/} Based on this study he concluded that a ten-percent failure assumption would effectively accommodate the chance that the igniters would not operate (Tr. 2074-79, Potter 5/23/84). This is not an arbitrary assumption, as the Intervenors suggest, but was based on Mr. Potter's examination of the hydrogen mitigation system study for McGuire and Catawba (Tr. 2076-78, 2079, Potter 5/23/84).

In the Board's view, it is much more arbitrary to take the Sequoyah RSSMAP data at face value and base one's analysis on it, as did Mr. Sholly (see Ints. Exh. EP-49). Because the Sequoyah RSSMAP does not account for any hydrogen mitigation system (see Apps. PFF, ¶¶28-29, pp.

^{18/} As clarified by counsel for Applicants, the "McGuire study" relied on by Mr. Potter (see Apps. Exh. EP-19, Potter Attachment B, p. 15) includes an appendix which evaluates the identical Catawba hydrogen mitigation system (see Tr. 2453, Carr 5/24/84).

232-33), Mr. Sholly's use of the uncorrected Sequoyah RSSMAP data in effect arbitrarily assumes a 100% failure rate for the hydrogen mitigation system. Even the Intervenors' testimony does not support an assumption of a 100% failure rate (see Tr. 2399-2400, Sholly 5/24/84; Tr. 2454, Riley 5/24/84).

Such an assumption is particularly arbitrary in light of the fact that the Commission has demonstrated sufficient confidence in the hydrogen mitigation system (such as is installed at Catawba) to approve its use pending the ultimate resolution of the hydrogen control rulemaking (see 46 Fed. Reg. 62,281-82 (1981); Duke Power Co. (William B. McGuire Nuclear Station, Units 1 & 2), CLI-81-15, 14 NRC 1, 2, 10 (1981)).

Mr. Riley's speculation that the hydrogen mitigation system would actually cause accidents is not supported by the record (see Tr. 2454-57, Riley 5/24/84). Indeed, the same issue was litigated by Mr. Riley on behalf of CESC against Duke Power Company in the McGuire proceeding, and resolved in favor of the Applicants (see Duke Power Co. (William B. McGuire Nuclear Station, Units 1 & 2), ALAB-669, 15 NRC 453, 466-72 (1982)). In light of Mr. Riley's limited qualifications, we do not attach significant weight to his testimony in this proceeding (see Apps. PFF,

¶65, p. 257; see also McGuire, ALAB-669, 15 NRC at 473-75 (holding that Mr. Riley is not qualified as an expert on hydrogen burning and containment strength)).

The Board is thus unable to find evidence in the record of this proceeding to support Intervenors' assertion that the Sequoyah RSSMAP provides the best model for possible accident consequences at Catawba. Indeed, the Intervenors cite nothing to support this position (see Ints. PFF, ¶33, pp. 154-55). The Board credits Mr. Potter's expert analysis and testimony (see Apps. PFF, ¶34, pp. 236-37; Staff PFF, ¶¶33, 42, pp. 100, 103).^{19/}

F. Establishment of the Plume EPZ Boundaries

The Intervenors next attack the deliberative process through which the state and local emergency planning experts arrived at the plume EPZ boundaries (see Ints. PFF, ¶¶41, 49-59, pp. 159, 163-68). Intervenors once again resort to selective quotations from the record in their discussion of demography as allegedly being "the

^{19/} After their lengthy discussion comparing the analysis of Mr. Potter with Mr. Sholly's testimony, the Intervenors offer that "the risk differences between the Surry and Sequoyah model [sic] are marginal at best" (Ints. PFF, ¶34, p. 155). Yet the Intervenors still maintain the plume EPZ must be expanded. Apparently the fact that Mr. Potter's analysis demonstrates that the offsite dose projections are within those found in NUREG-0396 is of no significance to the Intervenors. In this light, the Intervenors' arguments appear to be more properly characterized as a generic attack on NUREG-0396 and the adequacy of a plume EPZ radius of "about 10 miles" as defined in 10 C.F.R. §50.47(c)(2).

principal condition which effects [sic] local emergency response needs and capabilities" (Ints. PFF, ¶41, p. 159).

For example, the Intervenors take Mr. Lunsford's remarks about striving to include concentrations of population (rather than just following municipal boundaries) and turn it on its head, arguing that Charlotte should thus be in the plume EPZ (see Ints. PFF, ¶41, p. 159). The Intervenors simply ignore the fact that Mr. Lunsford explains this statement on the very next page of the transcript:

Frequently it is difficult to hook the [plume EPZ] boundary on a municipal boundary. And we strive to put it where it is easily identifiable by the public, at the same time including the municipal area or other areas where there are heavy concentrations of people or a school that may be a block away or two blocks away.

(Tr. 347, Lunsford 5/2/84)(emphasis added).

The Intervenors fail to note that under this quoted standard neither Mr. Lunsford nor any of the other expert state and local government emergency planners recommended extending the plume EPZ into Charlotte. Rather, all of these experts testified that the size of the current plume EPZ is appropriate to protect the people around the Catawba Nuclear Station (see Apps. Exh. EP-15, Lunsford and McSwain, p. 3; id., Pugh, p. 3; id., Phillips, p. 3; id., Thomas, p. 2; Apps. Exh. EP-19, Broome, pp. 1-2).

The Intervenors thus attempt to confuse the record on how the emergency planning officials decided to include Rock Hill, South Carolina but not Charlotte, North Carolina, in the plume EPZ. The decision-making process is clearly described in the Applicants' proposed findings and need not be belabored here (see Apps. PFF, ¶¶7-11, pp. 220-23; see also Staff PFF, ¶¶48-51, pp. 105-06).

Intervenors' attempts to cast doubt on the local emergency planners' exercise of judgment (see Ints. PFF, ¶¶49-50, pp. 163-64) are not supported by the record. The deliberative process involved in setting the plume EPZ boundaries is mischaracterized and unfairly belittled in the Intervenors' proposed findings (see Ints. PFF, ¶¶49-59, pp. 163-68). One of the NRC Staff's experts thoroughly reviewed and was fully satisfied with the completeness of the emergency planning officials' decision-making process that resulted in the plume EPZ boundary (see Staff Exh. EP-5, Robinson, pp. 20-23; Staff PFF ¶48, p. 105). The record evidence on the deliberative process undertaken by the emergency planning experts is accurately summarized in Applicants' proposed findings (see Apps. PFF, ¶¶7-11, pp. 220-233; see also Staff PFF, ¶¶47-51, pp. 105-06).

The Intervenors would have this Board chide Applicants and the state and local planners for allegedly following "abstract political boundaries" rather than

"physical phenomena" such as roads and creeks (see Ints. PFF, ¶54-55, pp. 165-67). Any such rebuke would clearly be inappropriate. An examination of the boundaries of the plume EPZ demonstrates that nearly all of the plume EPZ boundaries already follow "physical phenomena" such as roads and creeks (see Apps. Exh. EP-22; Tr. 343, 345, Glover 5/2/84; Tr. 2028-29, Glover 5/23/84). Those jurisdictional boundaries (city limits) which are also used as plume EPZ boundaries often coincide with "physical phenomena," and are, in any event, well known to the area residents (Tr. 337-38, Broome 5/2/84; Staff PFF ¶66, pp. 113-14).

Significantly, testimony of several emergency planning experts, elicited by the Intervenors during cross examination, shows that the planners deliberately follow "physical phenomena" such as roads and creeks (see, e.g., Apps. PFF, ¶¶7, 15, pp. 220-21, 225-26). Thus, the Intervenors' implication that the plume EPZ is bounded by "abstract political concept[s]" instead of recognizable landmarks, such as roads and creeks, is erroneous. This point was made clear as early as the second day of hearings, during the cross examination of Mr. Pugh of the State of North Carolina:

The city limits of Charlotte or any other city really have no bearing on the definition of the [plume emergency planning] zone. Now it just so happens that most of the time when cities expand . . . their city limits, they use readily

recognizable roads or landmarks to do this expansion. We use the same in doing the [emergency] planning zones.

(Tr. 360, Pugh 5/2/84; see also Tr. 347, Lunsford 5/2/84). No evidence supports the Intervenors' allegation that the emergency planners have not properly followed landmarks.

Intervenors completely miss (or attempt to obscure) the point of the past experience of Charlotte annexing part of the McGuire plume EPZ (see Ints. PFF, ¶58, pp. 167-68). If the city limits of Charlotte should similarly expand into the Catawba plume EPZ through annexation at some later time, the state and local emergency planners logically will retain the recognizable geographical boundaries that currently delineate the plume EPZ (and lie about ten miles from the plant) regardless of the changing political landscape. The population concentrations are unchanged, and so the plume EPZ is unchanged. While some convenience in defining the political structure of the plume EPZ is lost, no population concentrations within "about 10 miles" is left out of the plume EPZ (see Apps. PFF, ¶15, pp. 225-26; Staff PFF, ¶50, p. 106; see also Apps. PFF, ¶¶7-11, pp. 220-23).

As to Intervenors' suggestion of other plume EPZ boundaries, not one of the emergency planning experts who testified at these hearings suggested that any alternate plume EPZ boundary be adopted (cf. Ints. PFF, ¶55, p.

166). Indeed, all of them testified to the adequacy of the current plume EPZ boundaries (see, e.g., Apps. Exh. EP-15, Pugh, p. 3; id., Lunsford and McSwain, p. 3; id., Phillips, p. 3; id., Thomas, p. 2; Apps. Exh. EP-19, Broome, pp. 1-2; Staff Exh. EP-5, Soffer and Fairbent, pp. 17-19; id., Robinson, p. 23; Tr. 2181-83, Potter, Edmonds, Casper, and Glover 5/23/84; Staff Exh. EP-2, Heard and Hawkins, p. 23; see generally Staff PFF, ¶¶58-67, pp. 110-14).

Additionally, the technical analyses conducted by Mr. Potter and the NRC Staff's experts confirm the propriety of the selection of the plume EPZ boundary by Mr. Broome and the other state and local government emergency planners (see Apps. PFF, ¶¶20-40, 70-76, pp. 228-41, 260-65; Staff PFF, ¶¶21-33, pp. 94-100). Further, the Board has heard no testimony that demonstrates that the Catawba plume EPZ does not fully comply with the regulatory requirements. Indeed, the testimony of qualified experts is that the current Catawba plume EPZ meets all regulatory standards (e.g., Tr. 2181-83, Potter, Edmonds, Casper, and Glover 5/23/84; Staff Exh. EP-5, Robinson, pp. 20-23). This Board lacks any persuasive evidentiary basis for expanding the plume EPZ, particularly in light of the contrary judgment of the state and local government emergency planning officials.

Thus, this Board adheres to the ruling of the original Licensing Board, deferring to the judgment of the state and local emergency planning officials who established the plume EPZ boundary. As that Board explained:

Th[e] determination [of the plume EPZ boundary] cannot be made with scientific precision, given the nature of the factors listed in the rule.^{20/} Rather, it necessarily involves large elements of judgment. See Southern California Edison Co. (San Onofre Station), 15 NRC 1163, 1180-1182 (1982). This means the scope of our review on this issue should be relatively narrow.

(September 29th Order at 5)(footnote added). The evidence we heard reinforces the propriety of the planners' judgment (see, e.g., Apps. PFF ¶¶7-11, pp. 220-23).

The Intervenors' essential objection to the plume EPZ boundary seems to stem from a refusal to accept the regulatory standard in 10 C.F.R. §50.47(c)(2) for a plume EPZ radius of "about 10 miles," despite the fact that this standard was established based on lengthy deliberations and studies such as NUREG-0396. This is evident from the fact that the Intervenor CESG, represented then as now by Mr. Riley, has previously unsuccessfully argued that all of the city of Charlotte should be included in the plume EPZ for Duke Power Company's McGuire Nuclear Station (see

^{20/} These factors are listed as "such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries" (10 C.F.R. §50.47(c)(2)). All were considered by the emergency planners (see, e.g., Staff Exh. EP-5, Robinson, pp. 21-23).

McGuire, ALAB-669, 15 NRC at 462 n.16). Additionally, a previous contention, predating EPC 11, was filed in this operating license proceeding for Catawba, asking for a plume EPZ for Catawba of about 30 miles radius, also to encompass the entire city of Charlotte (see Duke Power Co. (Catawba Nuclear Station, Units 1 & 2), LBP-82-10, 15 NRC 566, 582 (1982)).

Intervenors' arguments about the population of southwest Charlotte (see Ints. PFF, ¶42, p. 159, discussed in part V.B. of this document, supra) do not demonstrate any failure to comply with the NRC regulations and regulatory guidance. Rather, these arguments simply demonstrate further the Intervenors' failure to accept the plume EPZ standard of "about 10 miles." Yet this regulatory standard was established by the Commission to be followed by the Licensing Boards. In this regard, the Board adopts the language of the Limerick Licensing Board regarding the proper application of §50.47(c)(2):

We note that NRC regulations and guidance on the size of the plume EPZ and the measures to be implemented in the ingestion EPZ were drafted by persons well aware of the few nuclear plants located near major metropolitan areas. Those regulations and that guidance make no exceptions for Limerick, or for other plants similarly situated. Nor do those regulations and that guidance rely on evacuation of any part of an ingestion EPZ in a nuclear emergency.

(Philadelphia Electric Co. (Limerick Generating Station, Units 1 & 2), LBP-84-18, 19 NRC ____, slip op. at 82-83 (April 20, 1984)). The evidence of record in this proceeding provides no justification for extending the Catawba plume EPZ beyond its current boundary.

G. The All-Hazards Plan

The Intervenors' attack on the current state of emergency planning in southwest Charlotte, outside the plume EPZ, misrepresents the record of this evidentiary proceeding (see Ints. PFF, ¶¶43-45, pp. 159-61). To put matters in their proper perspective, the Board notes initially that the NRC regulations and regulatory guidance do not require any emergency planning outside the plume EPZ (see Apps. PFF, ¶43, p. 243; Staff PFF, ¶¶59-60, pp. 110-11). The fact that planning under the Charlotte/Mecklenburg All-Hazards Plan currently exists outside the plume EPZ is evidence that the state of emergency planning in southwest Charlotte already exceeds that which is required for a possible accident at Catawba.

The All-Hazards Plan (Ints. Exh. EP-46) was extensively discussed at the hearings. This testimony, which establishes the adequacy of that plan, is summarized in Applicants' proposed findings (see Apps. PFF, ¶¶41-60, pp. 241-54; see also Staff PFF, ¶¶61-64, pp. 111-12). We address here only the most significant inaccuracies in Intervenors' proposed findings.

First, much of the emergency planning action described in Intervenors' proposed findings as being desirable for southwest Charlotte is in fact already in place under the All-Hazards Plan (Tr. 2135-37, Glover 5/23/84). Intervenors fail to mention this fact (Ints. PFF, ¶44, pp. 160-61). In addition, Intervenors similarly misrepresent the record on the effectiveness of the All-Hazards Plan during the notification, evacuation, and sheltering of some 2,000 to 3,000 people in Charlotte during the Baxter-Harris chemical fire in 1982 (see Ints. PFF, ¶45, p. 161). Intervenors note that about 100 civilians showed up for the free medical examinations offered after the fire, but they neglect to mention the fact that not one of these civilians showed any health problems (see Apps. PFF, ¶52, pp. 248-49).

Finally, Intervenors have no record support for their claim that "significant deficiencies" were identified in the report on the fire (Ints. PFF, ¶45, p. 161). That report labels them as "Problems" (Ints. Exh. EP-52, p. 6). The testimony adduced at the hearings demonstrates that these were simply a few slight procedural and logistical problems, all of which have been fully remedied (see Apps. PFF, ¶¶51-55, pp. 248-51). None of these was of sufficient significance to hinder the protection of the public during the Baxter-Harris fire (Tr. 4172, Fincher 6/6/84).

H. "Shadow" Evacuation of Charlotte

The effect of "voluntary" or "shadow" evacuation of Charlotte is thoroughly addressed in the proposed finding submitted by the Applicants (see Apps. PFF, ¶¶88-89 (EPC 11), pp. 272-74; id., ¶¶20-26 (EPC 14 & 15), pp. 295-99) and the NRC Staff (see Staff PFF, ¶¶52-57, pp. 106-10 (EPC 11); id., ¶10, p. 121 (EPC 14)). The Board needs to add very little to these discussions.

One significant point, however, is that the Intervenors' allegations of confusion and chaos during evacuation are totally without supporting record evidence (see Ints. PFF, ¶47, p. 162). Indeed, every one of the expert witnesses examined during the hearings explained that panic, chaos, and confusion were very unlikely during an evacuation at Catawba, based on their personal experience and on research studies involving actual evacuations (see Apps. PFF, ¶¶60-62 (EPC 14 & 15), pp. 315-17; Staff PFF, ¶16 (EPC 14 and 15), p. 125; see also Apps. PFF, ¶¶55-59 (EPC 14 & 15), pp. 312-15). The Intervenors' continued speculation, in the face of contrary expert testimony, is completely baseless.

The fact that some of the evacuation routes from the plume EPZ are on a "High Accident Location" list is not at all exceptional (see Ints. PFF, ¶47, p. 162). In light of the heavy traffic encountered on major routes such as these, more accidents are to be expected. The Applicants'

traffic planning expert, Mr. Kulash, addressed this concern and accounted for accidents in the evacuation time estimates, as explained in the Applicants' proposed findings and those of the NRC Staff (see Staff PFF, ¶55, pp. 108-09; Apps. PFF, ¶¶55-63 (EPC 14 & 15), pp. 312-17).

I. The Nurkin Committee

The Intervenors discuss at length the actions of the "Emergency Management Planning Review Committee," the so-called "Nurkin Committee," which the Mecklenburg County Commission appointed as an advisory body to the County Commission, charged with reviewing emergency planning in the county (Tr. 4308-10, Gordon 6/7/84; see Ints. PFF, ¶¶60-72, pp. 168-73). The Board again emphasizes the incomplete nature of the Nurkin Committee's work, as well as the fact that even when that Committee concludes its work, the product will only be a recommendation to the actual decisionmaker, which is the County Commission (see Apps. PFF, ¶¶12-13, pp. 223-24; see also Staff PFF, ¶68, p. 114, n.35).

The fact that the Blue Ribbon Committee has heard presentations by various groups is commendable. This Board, however, has heard extensive sworn testimony by experts and other witnesses, all of whom were subject to lengthy cross examination, addressing all the matters relevant to EPC 11. Accordingly, the Board as the

decisionmaker in this contested, adjudicatory proceeding decides the issues based on the evidence it has heard itself (see Apps. PFF, ¶14, p. 225).

The sequence of events leading to the County Commission's ultimate rebuff of the Nurkin Committee's premature resolution about the plume EPZ is accurately reflected in the proposed findings filed by the Applicants (see Apps. PFF, ¶¶12-14, pp. 223-25). With regard to the Intervenor's proposed findings, the Board simply notes that any implication therein of improper action on the part of the Committee's chairman, Dr. Nurkin, or on the part of Duke Power Company, is wholly unwarranted (see Ints. PFF, ¶¶66-67, pp. 171-72). Nothing in this record indicates any improper action (see, e.g., Tr. 4316-17, 4347-48, Gordon 6/7/84). Contrary to the Intervenor's implication that Dr. Nurkin deprived the County Commission of vital information (see Ints. PFF, ¶67, pp. 171-72), the County Commission apparently had before it the full factual findings accompanying the Nurkin Committee's resolution when it decided to send the premature resolution back to the Committee (Tr. 4348, Gordon 6/7/84).

There is no reason for this Board to defer deciding the merits of EPC-11 simply because the Nurkin Committee, an independent county advisory body, is still considering some issues which overlap these in EPC 11 (cf. Ints. PFF,

¶¶71-72, pp. 172-73). This Board has heard all the evidence necessary to resolve the merits of the contention.

Even assuming that the Nurkin committee had completed its work, and assuming it had recommended enhanced emergency planning inside Charlotte, and assuming that the County Commission adopted that recommendation, it does not necessarily follow that the boundary of the plume EPZ as defined by the Nuclear Regulatory Commission in 10 C.F.R. §50.47(c)(2) would need to be extended. Simply because a local government entity desires the NRC-mandated plume EPZ to be larger does not mean that the NRC must abdicate its regulatory and adjudicatory role and defer to the expressed preference of local officials. Even more so, the premature recommendation of a local government advisory body should not affect the decision reached by this adjudicatory Board in interpreting the NRC's regulations.

The county is of course free to enhance its own county emergency plans for Charlotte if it so desires.^{21/} This Board, however, has heard no evidence which would justify extending the plume EPZ into southwest Charlotte.

^{21/} This Licensing Board is without authority to enforce state or county emergency planning standards which go beyond the requirements of the NRC regulations (see Pacific Gas & Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 & 2), LBP-82-70, 16 NRC 756, 764 (1982), immediate effectiveness review, CLI-84-13, 20 NRC (Aug. 10, 1984).

VI. Emergency Planning Contentions
14 and 15 - Evacuation

The Intervenors' proposed findings on Emergency Planning Contentions 14 and 15 (EPC 14 and 15) raise very few points. Indeed, on most of the issues raised under EPC 14 and 15, the Intervenors have defaulted. Of those issues they do address, only a few are necessary for this Board to address specifically (see Ints. PFF, ¶¶1-11, pp. 174-84). In this section of their proposed findings, the Intervenors again take quotations selectively and out of context in an apparent attempt to confuse the record. In contrast with the Intervenors' proposed findings, the evidence on EPC 14 and 15 is thoroughly analyzed and presented in the proposed findings submitted by the Applicants and NRC Staff (see Apps. PFF, ¶¶1-110, pp. 281-342; Staff PFF, ¶¶1-21 (EPC 14), 1-15 (EPC 15), pp. 115-36). The Board addresses here the significant problems with the Intervenors' proposed findings.

A. "Error Bounds" in the Evacuation Time Estimates

The Intervenors' extended quotations about the emergency planners' understanding of the "error bounds" inherent in the evacuation time estimates prepared for Applicants by PRC Voorhees (PRC) do not indicate any deficiencies in either the time estimates or the planners' understanding of them (see Ints. PFF, ¶¶4-8, pp. 177-82). Contrary to Intervenors' allegations, the planners are indeed aware of the "imperial [sic] limitations" in the

estimates (see Ints. PFF, ¶4, p. 178). Indeed, a review of the complete series of transcribed questions and answers which are selectively quoted by Intervenors, when unabridged by the Intervenors' frequent ellipses, demonstrates that the emergency planning officials indeed do have a proper understanding of the use of the evacuation time estimates.

Specifically, Mr. Pugh indicated that if the projected time until there would be a radioactive release equalled the evacuation time estimate (three hours and twenty-five minutes for North Carolina) emergency planning officials would not order evacuation of the entire plume EPZ, because the emergency planners must use their judgment and allow a certain degree of latitude in carrying out the evacuation plans. This does not reflect adversely on the precision of the evacuation time estimates, but just the reality of applying such estimate to the facts of the actual evacuation at hand (Tr. 1098-1100, Pugh 5/7/84).

Similarly, Mr. Lunsford clarified that emergency planners do not simply take the evacuation time estimate and compare it with the projected time until release. Instead, the estimate is used as a tool in conjunction with additional data, such as is made available by the S.C. Bureau of Radiological Health (Tr. 1102, Lunsford 5/7/84). Mr. Broome of Mecklenburg County, North Carolina

explained that the emergency planners in North Carolina also use the evacuation time estimates as one tool in their decision-making process (Tr. 1091-92, Broome 5/7/84). Thus the record reflects an appropriate understanding of the uses and limitations of evacuation time estimates (see also Apps. PFF, ¶70, p. 321 n.133).

The Intervenor unfairly attack Mr. Kulash of PRC by selectively quoting from the record. After faulting Mr. Kulash for the rather lengthy and technical explanation he provided of the significance of "error bounds," Intervenor then express puzzlement at not having gotten a "straight answer" (see Ints. PFF, ¶¶7-8, pp. 180-81). Yet just four transcript pages after the more technical passage which Intervenor quoted, Mr. Kulash gave just such a "straight answer":

If we had to distill an answer to the simplicity of saying minutes or hour[s], my response would be minutes, that it's minutes, not hours, of variation that we are talking about

(Tr. 1120, Kulash 5/7/84). This passage is not cited in Intervenor's proposed findings on this point, however. Proposed findings such as these, which blatantly misrepresent the record, are irresponsible and unprofessional, and are of no assistance to the Board. This is particularly the case when the "straight answer" which Intervenor claimed was never given was quoted

prominently in the Applicant's proposed findings, which were filed a full eighteen days before Intervenors' document was filed (see Apps. PFF, ¶9, p. 289).

The Board stands by its conclusion that the Intervenors' inquiry into the "error bounds" in the evacuation time estimates does not call into question the study itself or its use by the emergency planning officials (see Apps. PFF, ¶99, p. 289). There is no support for Intervenors' allegations that the time estimates are "seriously flawed and unreliable" (Ints. PFF, ¶4, p. 178). The evacuation time estimates were conducted in full compliance with Appendix 4 of NUREG-0654 and represent the "state of the art" (see Apps. PFF, ¶¶7-8, 10, pp. 288, 289; Staff PFF, ¶¶6-7, 19, pp. 119, 128-29).

B. PRC's Supplemental Studies

Intervenors' proposed findings create the erroneous impression that the original May 1983 evacuation time study (Apps. Exh. EP-15, Kulash Attachment A) was somehow deficient because PRC developed supplemental documents subsequent to the original May 1983 time study (see Ints. PFF, ¶9, pp. 182-83). Intervenors' allegations are unsupported and erroneous. The supplemental studies simply document and confirm the well-founded basis for each of the specific parts and assumptions of the original evacuation time study which were attacked in the

Intervenors' July 1983 emergency planning contentions (see Staff PFF, ¶6, p. 119; Apps. PFF, ¶¶20-26, pp. 295-99 (effect of "snadow" evacuation and evacuation time estimate for Charlotte); id., ¶¶7-8, p. 288 (summary of methodology); id., ¶¶28-36, 42, pp. 299-304, 307 (school population evacuation); id., ¶¶46-63, pp. 308-17 (work and living habits assumptions); id., ¶¶80-87, pp. 326-31 (evacuation of Carowinds and Heritage USA); id., ¶¶89-105, pp. 332-39 (evacuation of transport-dependent population).

These supplemental studies, going beyond the requirements of NUREG-0654, do not demonstrate any inadequacies in the original evacuation time study. Rather, these supplemental studies clearly demonstrate that the assumptions in the original time study were well-founded, and that the Intervenors' attacks on the original time study were unfounded.

C. Thirty-Three Hour Evacuation Estimate

The final point raised by the Intervenors involves an old, discredited estimate of the evacuation time for Catawba produced prior to NUREG-0654, which indicates that about thirty-three hours would be required to evacuate part of the plume EPZ near Rock Hill, South Carolina (see Int. PFF ¶ 10, pp. 183-84). This outdated document was apparently prepared under the loose guidance on estimating evacuation times which predated NUREG-0654 (Tr. 1163-69, Glover 5/7/84; Tr. 1216-18, Glover 5/8/84). Contrary to

Intervenors' assertion, none of the emergency planners who testified could recall having reviewed this old time estimate, let alone having endorsed it as accurate (see Tr. 1170-71, Broome, Thomas, and Phillips 5/7/84).

Significantly, the Staff's evacuation planning expert, Dr. Urbanik, explained that "[t]here isn't a single site in the U.S. where a 33-hour estimate would be reasonable" (Staff Exh. EP-1, Urbanik, p. 8). The mere existence of an earlier, conflicting estimate of evacuation time does not in any way cast doubt on the validity of PRC's estimate. Comparing the backgrounds of the two studies leaves no doubt as to which was the more accurate. The thirty-three-hour estimate was based on an unknown method, produced results that cannot be duplicated, and is documented in a single-page letter. No witness was called who could testify to its validity. The three- to four-hour estimate, in contrast, is the product of a widely used, generally accepted method approved in NUREG-0654. It is supported by unrefuted expert testimony and is documented in an extensive series of reports. The method and results have been endorsed by independent experts and by State and local emergency management officials (see generally Staff PFF (EPC 14), ¶ 20, pp. 129-30; App. PFF ¶¶ 6-8, pp. 287-88).

The Intervenors have identified no feature of the earlier estimate that is more reasonable or realistic than the PRC estimate. In fact, they were unable to discredit the PRC work in any way. This Board has heard no evidence that calls into question either the accuracy of the evacuation time estimates produced for the Applicants by PRC or the use of these estimates by the emergency planning officials.

VII. Emergency Planning Contention 18 --
Adequacy of Local Telephone System

In their proposed findings on this contention (EPC 18), Intervenors concede that the possible overloading of local telephone systems would not preclude timely notification of essential emergency response personnel. Intervenors acknowledge that "much of the concern that is founded upon inadequacy of the local telephone system appears to be addressed through response by Applicants and the State and Local planners . . ." (Ints. PFF, ¶13, p. 186). Intervenors' "remaining concerns" are the effects of possible unavailability of local telephone service as it relates to notification of the larger number of lesser emergency response workers and members of the public requiring special assistance (Ints. PFF, ¶14, p. 186).

Before replying to these remaining concerns, we note that Intervenors have not proposed a finding of failure by Applicants to comply with the applicable standards and criteria of NUREG-0654-FEMA-REP-1/Rev. 1, and we accept the testimony of the FEMA witnesses that the standards and criteria relevant to this contention have been met (Staff PFF, ¶¶2-3, p. 137; Apps. PFF, ¶5, p. 345). Indeed, the discussion of communications capabilities in the Staff's proposed findings on EPC 8 further demonstrates the adequacy of the communications system (Staff PFF, ¶¶31-36 (EPC 8), pp. 64-68).

The stipulation of facts referenced in the response to one of Intervenor's interrogatories (Ints. PFF, ¶2, p. 185) is not sufficient by itself to establish that the local telephone systems are inadequate to handle an increased volume of telephone calls in the wake of a radiological emergency at the Catawba Nuclear Station. However, it is acknowledged that at some point during such an emergency, some overloading of the local telephone system might result.

We are satisfied that all essential emergency response personnel could be notified prior to any unusually high usage of the telephone systems (Apps. PFF, ¶27, p. 360). For the reasons stated herein, we also conclude from the testimony on this contention that notification of lesser or second-tier emergency response workers and communication by transportation-dependent persons of their need for transportation can and will be accomplished in a timely manner even if some overloading of the local telephone system occurs.

The widespread existence of radio communication between and among police, fire, civil defense, and other emergency personnel provides a back-up means of communication in addition to tone and voice pagers and walkie-talkies available to certain emergency response personnel (Apps. PFF, ¶¶17-20, pp. 353-56). Additionally,

emergency response workers could be notified by EBS announcements, by hearing the warning sirens, or by one-one-one personal contact (Staff PFF, ¶¶17-19, pp. 142-43).

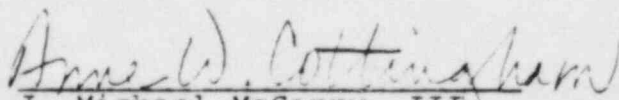
As to transportation-dependent persons, we note that a number of procedures are in place for compiling, in the counties involved, lists of transportation-dependent individuals. First of all, the Applicants' brochure clearly informs transportation-dependent persons to notify the local emergency management office "today" of the need for transportation in the event of an emergency (Apps. PFF, ¶21, pp. 356-57). Applicants have also indicated that a tear-out card would be provided in the next brochure which could be conveniently mailed to the local emergency management office by transportation-dependent persons (Apps. PFF, ¶21, p. 357 n.142).

Further assurance that transportation-dependent individuals will not be isolated by possible overloading of the telephone systems is provided by other ongoing practices, such as Gaston County's compilation of a list of transportation-dependent persons as a part of the annual fund raising drive by fire departments (Apps. PFF, ¶¶21-22, pp. 356-58; ¶29 (EPC 1/7), pp. 95-96 n.17; ¶¶94-95 (EPC 14/15), pp. 334-35). Mecklenburg County also plans to develop such a list (id.), and York County currently maintains a listing of transportation-dependent individuals who would require special notification (id.).

Moreover, arrangements will be made to pick up those without transportation of their own. Finally, the EBS messages will provide a reliable means for passing the word to such persons that special transportation arrangements are available if the persons needing transportation will signal from their door or porch (id.; Staff PFF, ¶¶22-23, pp. 143-44).

In view of these ongoing practices and plans, and in view of the likely extensive patrolling by law enforcement personnel of areas being evacuated, we do not believe that unusually heavy usage of local telephone systems will unduly hamper evacuation of transportation-dependent persons. Accordingly, we reaffirm our conclusion that EPC-18 is without merit.

Respectfully submitted,



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August 20, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
DUKE POWER COMPANY, et al.)
)
(Catawba Nuclear Station,)
Units 1 and 2)

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Docket Nos. 50-4138
50-414 ✓

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DOCKETING & SERVICE
BRANCH

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Reply To Proposed Findings Of Fact And Conclusions Of Law Of Intervenor And The NRC Staff" in the above captioned matter have been served upon the following by deposit in the United States mail this 20th day of August, 1984.

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