UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
DUKE POWER COMPANY, et al.	)	Docket Nos. 50-413
	)	50-414
(Catawba Nuclear Station	)	
Units 1 and 2)	)	

CESG AND PALMETTO ALLIANCE RESPONSES TO DUKE POWER'S SECOND ROUND OF INTERROGATORRIES REGARDING EMERGENCY PLANNING CONTENTIONS 1,3,6,7,8,9,11, 14,15 AND 18

Herewith CESG and Palmetto's response to Applicant's second round of interrogatories filed January 20, 1984.

EP Contention 1

1-1. Do you contend that inclusion of greater detail on health effects in Applicant's revised brochure, "Catawba Nuclear Station Emergency Plan" would result in a better response by the public in the event the plan is activated?

Yes.

1-2. Please explain the basis for your answer to the previous interrogatory.

There are many people who, misled by Applicant's casual attitude about such matters, like a bumper sticker on a PR employee's car reading "A Little Nukey Is Good For You", would not regard a warning as indicative of any substantial hazard.

1-3. What, if any, facts, studies or other references will you cite to support your answer to Interrogatory 2?

The contrast is to be found between, for example, the first 4½ pages of a paper by Roger E. Linneman, M.D., distributed to the members of the Mecklenburg Emergency Planning and Review Committee under cover of Phiilp F. Carter, (Duke) Director, Community Relations,

Dec. 13, 1984, and the consequence sections of the FEIS, 5.9 and especially 5.9.4.5(2), and Appendix F; and NUREG/CR-2239, Part 2.

1-4. What, if any, information do you have which indicates that the State of North Carolina has not disseminated, or will not disseminate, information to inform the public of its planning for radiological emergencies?

I have yet to see any brochures, advertisements, or hear any radio programs in which the state of North Carolina tells members of the public that a release from a nuclear plant has the potential for killing tens of thousands of people and that drills and response to warnings are to be taken as seriously as if one's life depended on it, for indeed it may. I do not have information which would show that N.C. administrators have conspired to keep the public uninformed as to the lethality of radionuclides. On the other hand I have seen the behavior of state officials at the evaluation session after the first McGuire drill and heard no note of serious concern.

1-5. Please explain with specific reference to the language in Applicant's revised brochure what portions are considered deceptive and/or misleading and why.

Applicant does not compare the potential dosage levels of a large release with the dosage levels shown on p. 5. Pp. 2 and 3, plant description and layout, are totally irrelevant in an emergency situation and serve to "burn out" the poor reader or the hurried person before the relevant message, starting on p. 7, is reached. Although very low levels of radiation are "A Fact of Life", the levels potentially present in a serious accident should not, by inference, be put in this category.

1-6. Do you contend that Applicant's revised brochure is not in compliance with 10 CFR 50.47(b)(7)?

No.

1-7. If you answer Interrogatory 6 affirmatively, please provide the basis for your answer.

N.A.

1-8. What, if any, information do you claim has been disseminated by Applicant or offsite response organizations "that radiation is not particularly harmful?"

See 1-2 and 1-3 foregoing. The full list would be burdensomely long and is better known to the Applicant. The administration of the state is of the same persuasion and in its dedication to activities which would attract industry to the state has been indifferent to the safety and health considerations related to nuclear power.

3-1. For how many potential evacuees do you contend that Applicant and offsite response agencies are responsible for making arrangements for uncontaminated food, clothing, and bedding?

Approximately 150,000, considering the populated area which could be affected in a worst case axcident.

3-2. Please explain the basis for your response to the previous interrogatory.

The SER, Table 2.1, puts the 1980 10 mile radius population

at 72,728. NUREG/CR-2239, Table D.1-2, leads to a calculated population for a 20 mile radius of 466,212. If during stagnant conditions there are sufficient wind shifts to cover about ½ of the most densely populated area to the northeast of Catawba, about 150,000 will be affected.

3-3. Are you aware that South Carolina has revised its plan for 14 reception/shelters and now proposes to utilize in excess of 100 shelters, to be opened on an as-needed basis? Do you consider the new Shelter Plan to be inadequate? If so, indicate the factual basis for your answer.

I am not familiar with the new S.C. plan.

3-4. Upon what do you base your statement that persons from outside the evacuation area "might well proceed to a nearby reception center -- exacerbating problems of crowding . . .?"

Any significant volunteer evacuation from Charlotte would swamp the UNCC facilities.

3-5. How specific do you contend the plan must be with regard to controlling entry and exit from the shelters?

Detailed and specific enough to prevent the condition referred to in 3-4. It is not the intervenor's burden to write specifications for plans. However we will recognize a good one if we wre shown it.

3-6. Do you contend that persons from outside the evacuation area should be excluded from shelters?

It should depend on their need. If contaminated they should, if possible, be decontaminated. Uncontaminated persons should be sent on to more remote shelters if crowding threatens. In all instances contaminated or injured, or incapacitated persons should be

given preference to the uncontaminated.

3-7. What is your definition of "overcrowding"? Do you know the guidelines as to the number of persons per square foot emergency agencies use in assessing shelter capacity? Do you disagree with these guidelines? If so, what figure do you accept? State what amount, if any, of additional space is needed at shelters for evacuees and provide the basis for your statement.

Guideline, 40 ft^2 per person. 8'x5' is endurable in an emergency. For comparison a small apartment provides about 400 ft^2 per person. The circumstances are a factor. For the first day and night 40 ft^2 would be accepted by most. After a month it would become tedious. Particularly if circumstances compelled the maximum density of 20 ft^2 per person. This corresponds to a sleeping space of 6½x3.1 ft. The space should increase from a 20 ft^2 level as rapidly as possible, within a day or two. If the stay is to be longer than five days, the 40 ft^2 will not be adequate. My experience does not enable me to say what will be adequate but I am sure that the requirements will vary with the individual.

3-8. Do you contend that uncontaminated food, clothing, and bedding should be stored at the shelters? If so, for what percentage of the population should such supplies be stored? If not, how much time would you consider acceptable to accomplish delivery? Provide the basis for your answer.

Each shelter should contain a two day supply of food and beverages for its maximum capacity. For centers nearest the EPZ there should be a supply of fresh clothing which, in total, would come to 300,000, just to accomodate persons receiving a whole body dose of 25 or more R, FEIS Figure 5.3. There should be a comparable

supply of cots, mattresses, and bedding. This would correspond to 100% those NRC calculations indicate could be exposed. It is doubtful that deliveries of cots, mattresses and bedding, and clothing, could be made in a reasonable period of time. Food deliveries could probably be started and sustained after two days.

3-9. Do you contend that those in charge will be unable to control entry into and exit from shelters? If so, what is the basis for such contention?

Yes. The ratio of evacuees to emergency workers plus American ingenuity and determination on the part of the evacuees.

3-10. Do you contend that there are other shelters which are superior to the ones designated in the plans? If so, what are they? In what respects are other shelters superior?

This is not the sense of the contention except insofar as some of the shelters like elementary schools, warehouses and churches are not likely to have anything approximating adequate decontamination facilities. It remains to be shown that any of the facilities are equipt to decontaminate waste water.

3-11. In response to Applicant's initial interrogatory 2.b. on contention 3, CESG and Palmetto Alliance indicate reliance upon "Studies for evacuation in the event of nuclear war." The "OTA report" is referred to in this regard. To what specific OTA report is reference made?

The OTA report is concerned with nuclear war. Particular reference is made to the scenario developed for Charlottesville, Va., which was put in the role of being a host city to evacuees.

6-1. Do you contend that contaminated persons will fail to go to shelters even when directed to do so?

Not invariably. Some individuals who are unable to comprehend the nature of the problem or who have a poor grasp of reality may fail to do so.

6-2. If the response to No. 6-1 is affirmative, what is the basis for your response?

See 6-1.

6-3. Do you contend that information provided or to be provided to the public by Applicant and by the States involved as to procedures for reporting to shelters is inadequate?

Yes.

6-4. If the answer to Interrogatory 6-3 is affirmative, what corrective action do you contend is required?

It should be made clear that a person may be contaminated externally and internally and receive a gamma dose without residual contamination. Unless one is radio-monitoredexternal contamination can not be detected; unless one is whole body counted, internal contamination is likely to be undetected; Unless one wears, or is in proximity to a TLD or film badge there will be no record of gamma exposure.

6-5. What, if any, basis do you have for asserting that emergency plan procedures for registration, processing, shelter, and decontamination would not be followed by the general public?

In the event of a large release and a persuasive warning if the evacuees report to centers in the numbers they are supposed to, the centers would be swamped. Center manning would probably

lag evacuee arrival. Newly arrived evacuees would in some part not be inclined to join a hopelessly long queue and would either seek other shelter or try to deal with the problem on their own. They would, if informed about the possibility of contamination, have little way of knowing whether they were contaminated. Going to a motel and bathing would be a quicker remedy for potential harm than waiting in line interminably. In a large evacuation the limited provision are such that the situationswould go out of control.

6-6. Do you contend that registration at shelters should be mandatory? If so, what effect would this have on evacuation time and traffic flow?

Mandatory registration, police enforced by road block, etc., would indeed impede traffic flow. Depending on where it occurred, it would not necessarily delay departure from the evacuation zone. The difficulty of dealing with such matters in general terms is apparent. Representative scenarios should result in a better approximation to actuality.

6-7. What impact, if any, would purely voluntary registration at shelters have on evacuation time and traffic flow?

Purely voluntary registration would presumably speed traffic flow but, depending on the definition of "evacuation" would not necessarily increase evacuation time.

6-8. Do you contend that the level of contamination potentially available for EPZ residents would be sufficiently high to cause health effects? If the answer is affirmative, what is the basis for it?

Yes. The NRC publications "Power Reactor Eevnts", based on LER's, and I and E bulletins and information notices, and occurrences like the Zimmer and Byron plants make it clear that NRC regulation

is not adequate to prevent design faults, equipment faults, maintenance deficiencies and operator errors, to provide a less than complete list. The potential for caastrophic damage is not disputed--the inventory of radioactivity in a core is enormous. There have already been the Fermi and TMI melting incidents. Catawba has a thin shell containment and, in my view, is not adequately protected from a hydrogen explosion. An Event V, or an SST1, both put forth by the NRC, would be more than capable of causing gross contamination of exposed people.

8-1. With regard to the North Carolina plan, what specific areas do you contend are lacking in the assignment of "clear and effective primary responsibilities for emergency response?"

Example: The EMO is responsible for monitoring and decontamination. A substantial amount of instrumentation is inventoried. There is no indication of decontamination equipment monitored. Nor are there specific indications of trained monitors or decontaminators. In one place the plan indicates that the SERT takes over by invitation. In another context it takes over when set up at the EOC. These examples are not meant to be exhaustive.

8-2. With regard to the South Carolina plan, what specific areas do you contend are lacking in the assignment of "clear and effective primary responsibilities for emergency response?"

Example: There are five York County officials, any one of whom can order the warning sounded. Similarly there are questions as to adequate direct responsibilties for opening and operating shelters, for provisioning, monitoring, decontaminating.

8-3. With regard to the plan for the County of Mecklenburg, what specific areas do you contend are lacking in the assignment of "clear and effective primary responsibilities for emergency response?"

See 8-1. The chiefs are lined up but the Indians are taken for granted. What basis is there for believing that the social services department has adequate personnel to cope with a major accident? Ditto for decontaminationn personnel, for hospital radiation beds, for provisions.

8-4. With regard for the plan for the County of Gaston, what specific areas do you contend are lacking in the assignment of "clear and effective primary responsibilities for emergency response?"

See 8-3. For example Gaston Memorial Hospital has a plan to treat five radiation victims. The 1980 population of Gastonia was 47,333. For a northwest movement of a plume pathway Gaston Count's single facility, a high school, would be swamped by the 15,000 or so who would evacuate by routes 274 and 321.

8-5. With regard to the plan for the County of York, what specific areas do you contend are lacking in the assignment of "clear and effective primary responsibilities for emergency response?"

See 8-2. However the revised York plan calls for siren alert as a state action for both site area and general emergencies. Again it is the matter of having enough qualified personnel in such non-routine functions as radiation monitoring and decontamination.

8-6. For each of the previous five interrogatories, state which specific supporting organizations you contend have not been assigned specific responsibilities.

Pointlessly burdensome. One need only refer to the several plans to see the agency or agencies assigned these functions.

8-7. Do you contend that there are specific primary or supporting responsibilities which should have been, but have not been, assigned to an offsite response organization, or should have been assigned to a different organization? If so, what are they? To whom do you contend each should be assigned?

Foregoing responses, for example 8-2, make clear that, in the lower echelons, there are no real organizations qualified to carry out the less routine assignments of decontamination and monitoring. Experience and skill are required to make the human decontamination judgments required, see STRERP, pp. VII 1-2. The impracticality of requiring a large, skilled support organization for a possible catastrophic event, the likelihood of which one hopes is low, but which is essential to minimizing the consequences, casts doubt on the enterprise which requires this.

8-8. What is the basis for your belief that there would be a lack of coordination among the various jurisdictions having responsibilities in the event of an emergency?

It would depend on the magnitude of the release, weather, time-of-day, Carowinds status, etc. A small release with a steady east wind, no inversion, no precipitation, and a minimal number of evacuees who reached shelter before the release took place could probably be well handled. On the other hand a maximum release, prompt--containment failure due to hydrogen explosion, meltdown, stagnation with fitful drift to the northeast, both obvious and inobvious particulate contamination, total evacuation all but the southwest quadrant, would cause breakdowns in function of the organization.

8-9. Do you recommend any specific changes to the existing plan of the State of North Carolina, the State of South Carolina, and the Counties of Mecklenburg, Gaston, and York to ameliorate conditions which may exist during the period between notification of State authorities of the existence of an emergency and their arrival at the EOC?

The newly revised plans have not been in hand long enough to make a comprehensive critique possible.

8-10. For what specific reasons do you contend the location of the forward emergency operations center is dangerous?

The FEOC at the intersection of 321 and 55 is 5 m. from the Catawba plant. This S.C. National Guard armory does not appear to be radiologically protected. A slow wind from the east and an inversion would probably make the FEOC untenable to occupy, given a major release.

8-11. Please specify what you contend would be the best location for the forward emergency operations center and explain the basis for your answer.

I would propose two or three FEOC sites so located that simultaneous contamination would be less likely. I would also suggest a greater distance from the plant. If it were available a hermetically sealed building with appropriate particulate filters for radio particulates and radio iodine would be an improvement.

8-12. In connection with a possible decision to order evacuation of all or part of the plume exposure pathway EPZ, what particular consultative and/or delegative authority do you contend would cloud or impede the lines of primary responsibility?

As you realize, it was our position, not accepted by the Board,

that an independent, qualified authority make this kind of decision. On the assumption that Duke personnel will accurately report an ongoing reasonably complete record of relevant information to the RSP I would expect that office to make the most competent decision--if suitably qualified persons were on call around the clock. Our concern is that local public officials, overly persuaded by Duke's representation that we are all exposed to radiation and, indeed, it may be good for us, will overly delay sounding the alarm. One concern would be the protection of Duke's public image. Why issue a warning that will scare people, make them view Duke in an unfavorable light, if it may really not be necessary. Any tilt in these matters should be in the direction of favoring public health and safety.

8-13. For which agencies, government, or organizations do you consider there to be a need for modification or clarification of assigned responsibility?

In the initial N.C. plan the chairman of the county commission ordered the alarm sounded. In the revised plan "Local government" will determine minimum off-site response measures, Part 3, p. 17. The Key Alert Notification Chart lists 17 entities. Mecklenburg County is given the reponsibility for early notification, but it is not spelled out as to how the decision is made. Consultation is likely, but not specified. Clarification is required.

9-1. Do you contend that the information provided for handicapped persons in Applicant's revised brochure is inadequate?

Yes.

9-2. If the response to Interrogatory 9-1 is affirmative, what corrective action do you contend is required?

A direct telephone connection should be made to the residence of each handicapped person and to the agent responsible for the carrying to safety of that person. Banked circuits carrying an appropriate taped message could accomplish this function.

9-3. What kinds of weather conditions would have impact on whether people can hear the sirens? How?

A thick layer of low density snow has strongly sound absorbent properties. A storm, rain, snow, or wind, in which there is much wind noise or howling would be adverse.

9-4. What, if any, factual basis is there for believing that the factor of distance would preclude sirens from being heard by persons within the EPZ?

Auditory acuity varies from person to person and generally declines with age. It peaks in the late teens. The acoustic properties of houses differ greatly, depending both on wall construction, interior acoustics, and part of the house. Attention level affects some persons perception of sound--those so absorbed in what they are doing that they do not notice extraneous sounds. Competing sounds within the dwelling can drown out a siren. A loud TV program; a loud stereo playing of rock music. Sleep makes many less aware of ambient sounds. The farther from a siren, the more these effects will interfere with it being responded to.

9-5. What, if any, information do you have to show that Emergency Broadcasting Stations may not function as anticipated?

A possible cause of an accident is loss of off-site and on-site power. Under these conditions a number of radio stations, not equipt with backup power, would cease broadcasting. Depending on listening habits, that would interfere with the notification

of listeners to those stations with battery operated sets. Loss of off-site power would affect the listening to radio and TV of those with blacked out sets.

9-6. Do you propose that each and every EBS station have emergency backup power? Why?

Backup power for all stations would not be greatly helpful where AC power was also lost to listeners.

9-7. What specific notification provisions do you contend are inadequate as to hospitals, prisons, recreation areas, and schools?

Our contention relating to this was not admitted.

9-8. What specific additional notification provisions do you contend are required?

See foregoing response.

9-9. In reference to "etc." in paragraph "a", what other specific situations or factors are you contending could cause a person not to hear a siren?

See response 9-4.

9-10. Do the "warning sirens" to which you refer in part "a" consist only of fixed sirens or do they include those of any emergency vehicles that would travel routes in an area?

Both. Depending on the accident scenario it might be imprudent or impossible, iced up roads, heavy snow, fast developing release, to send out emergency vehicles.

9-11. Do you consider the 10 db per distance doubled loss factor inadequate to account for the effects of weather and distance from sirens?

I do not have the evidence to say.

9-12. Do you consider the provisions in Applicant's revised brochure inadequate for alerting the hearing impaired? If so, explain why.

Yes. Many of the hearing impaired are not aware of it. The booklet does not spell out how the hearing impaired will be aided, only that the emergency agency should be informed about special needs., There is no assurance that anything will br done in response to special needs.

9-13. In part "c" of this contention, are you referring to the ability of radio and TV stations to operate when offsite power is lost to those stations or about the ability of area residents to hear a message at their home when power is out at the homes or both?

Both.

9-14. The response to Applicant's initial interrogatory 2.a. on contention 9 indicates "availability and reliability of components in the plan, unforeseen responses" as problems in notification. What specific components of the plan do you contend will not be available or reliable in notifying the public? What or whose unforeseen responses do you contend may hinder notification of the public?

Regarding components in the plan--for some time after midnight most residents will not be listening to radio or TV. If the siren does not wake them the radio/TV component will not be available. If AC power is lost, AC operated sets will not be reliably available. There will also be times when the emergency decision makers will not be available. The EMO is not open continuously. There are on occasion political gatherings or events which call the decision makers away from instruments of communication. I have seen no reference to beepers.

9-15. In response to Applicant's initial interrogatory 2.b. on contention 9 you indicate "LERs and failures in military planning" as the grounds for your opinion that people will not be notified properly. Please cite specific references.

In theory NRC regulation, which applies to design, QC/QA in regard to equipment and structures, operation, and maintenance should insure fault free operation of nuclear facilities. The high incidence of LER's, about one per unit per week shows that in the real world regulation is not completely effective. This will almost certainly also be true of elements in emergency actions (as opposed to plans) wherein siren notification will not work perfectly, radio messages will not be heard. Planning is a key element in military operation. The tragic occurrence in Beirut is an example of the unforeseen resulting in plan failure. The military is a good area for comparison with accidents. There are major intangibles in both and major occurrences do not reduce to routines.

9-16. The response to Applicant's initial interrogatory 3.a. on contention 9 indicates "the several emergency planning documents sent to the parties by the Applicant" as the basis for concern in this area. List the specific documents relied upon. List any documents relied upon to place into contention the distance assumed by Applicant for siren coverage.

Catawba Station Emergency Plan--Duke Power Company. No date.
York County Emergency Operation Plan--NUREG Criteria. May, 1983.
SCRERP. February, 1982.
SCORERP. August, 1981.
Catawna Site Specific--NUREG Criteria. May, 1983.
North Carolina Emergency Response Plan. Cover by J. T. Pugh, June 3, '83
City of Charlotte Protective Response Plan For All Hazards. 1982
Also NUREG-0654;FEMA-REP-1 and
Glover affidavit and pleadinf filed Nov. 3, 1983

9-17. As you are now aware of the existence and content of Carowinds and PTL emergency plans, do you maintain your contention in this area? If so, what specific parts of the plans do you call into question?

The respondent has yet to see the Carowinds Emergency Evacuation Plan and the Heritage U.S.A. Emergency Evacuation Plan as itemized on p. 42 as part of R. M. Glover's file, attachment to R. Shearin letter of Jan. 9, 1984. The revised state plans either ignore the specifics generated by traffic from these places on North Carolina roads, the Jan. 1984 revision of the N.C. plan, or ignore transient population as in the S.C. plan. The N.C. plan is at least cognizant of a Carowinds Boulevard, Part 3, pp. 23 and 24. The S.C. plan for York, Jan. 1984, p. Q-27, places the relevant zone B-2 population at 9771 and provides corresponding low evacuation times. The same numbers are used in the Catawba Site Specific plan, p. 14. However the Evacuation Time Estimates by PRC Voorhees, April, 1983, while providing the same total permanent resident population for Zone B-2 attributes to it a maximum transient population of 46,826 and a special facilities population of 3,094, p. 17. Though Voorhees is aware of Carowinds, p. 33 re evacuation of unescorted children (where, without describing the means, "Unescorted children . . . will be reunited with their parents", no specific attention is given the problems that a huge flow of transient traffic would cause.

9-18. The response to Applicant's initial interrogatory 4.c. on contention 9 states that, "there are circumstances in which people panic and do not act wisely.....". What documents or other studies do you rely upon to establish a basis for this assertion?

This is a reflection from experience for which individual references would be difficult if not impossible to retrieve and, in my opinion,

would be of little value to Applicant. There come to mind the crushing and stampeding when "fire" is called out in a theater or night club, be there one or not; the rush to one side of a boat under some accident or weather conditions with resultant capsizing; the behaviour of some people under conditions of material shortage; instances of irresponsible and violent behavior at sports events and rock concerts, in traffic tieups.

11-1. Do you contend that the currently drawn plume EPZ boundary does not properly reflect local emergency needs and capabilities? If so, what specific needs and/or capabilities should be considered?

Yes.

The evacuation of some or all of Charlotte should be planned for, as well as means for providing for the needs of the evacuees. There is no information brochure or other notice which specifically instructs persons in various parts of the city what to do whether they are in the plume pathway or whether they are not. There is no traffic planning for Charlotteans who would leave the locale by automobile whether it would be in their best interest or not. There are no provisions for registering, monitoring, decontaminating, sheltering, feeding, returning or relocating.

11-2. Do you consider the Charlotte/Mecklenburg All Hazards Plan an appropriate adjunct to the existing emergency plans for purposes of possible emergency response needs within the city limits of Charlotte? In what respects do you contend it falls short of meeting the needs or providing any necessary capabilities for radiological emergency response in Charlotte associated with Catawba Nuclear Station? Please explain the basis for your answer.

No. It appears suitable for small scale nonradiological accidents of relatively short consequence duration. It is not suitable as an adjunct because under severe conditions the potential mortalities and injuries in Charlotte could exceed those in the present EPZ. See answer to 9-1 for some shortcomings which are fatal to the plan. The basis for this answer incorporates the relevant demographic, meteorological and severe accident consequence data variously put forth in the ER, the FEIS, NUREG-2239, the plans referred to in the response to 9-16.

11-3. Please explain the manner in which you contend the flow of evacuees from the present plume EPZ through Charlotte gives rise to a need for evacuation planning within Charlotte.

Those Charlotteans who do not trust official pronouncements in regard to nuclear accidents if there is an indication that a plume is headed in their direction will spontaneously evacuate. This occurred in the TMI-2 accident. As four direct evacuation routes go through Charlotte, I-77, US 521, NC 49 and 160, the need for planning for Charlotte is apparent.

11-4. What meteorological conditions do you contend justify extension of the plume EPZ to suitable boundaries within Charlotte city limits?

The conditions described by CESG's meteorological witness, John Purvis, essentially confirmed by the NRC's and DPC's meteorological witnesses and described in the FSAR, NUREG/CR-2239, etc.

11-5. What boundary of the plume EPZ within Charlotte would you consider acceptable?

NRC and Sandia studies indicate the possibilty of early fatalities and injuries as far as 25 miles downwind from a major release. Because this lies beyond the Board's example in revised contention 11,

I favor, with possible minor exceptions, using the limits of the example.

11-6. What demographic data do you contend justifies such an extension of the boundary of the northeast quadrant of the plume EPZ-

See Affidavit of Jesse L. Riley of November 18, 1983, p. 3. The demographic specifics are in NUREG/CR-2239, Tables D.1-1 to D.1-4, pp. D-43 to D-50.

11-7. What access route conditions do you contend justify extension of the boundary of the northeast quadrant of the plume EPZ?

See answer to 11-3.

14-1. Will you call the individual referred to in your contention as "Dr. Sheldon C. Plotkin"" as a witness? Will you offer any materials into evidence prepared by Dr. Plotkin? If so, please identify such materials.

Respondent is at present unable to say.

14-2. What studies or other data do you rely upon to back up the claim that "voluntary" evacuation would take place outside the EPZ?

The most persuasive is the spontaneous evacuation at rhe time of the TMI-2 accident.

14-3. What percentage of the people would you consider an appropriate estimate of "voluntary", extra-EPZ evacuation? What is the basis for this percentage? What references, studies or other data support this percentage?

The percentage would probably relate to the circumstances. If the early radio and TV warnings indicated containment breach with core meltdown I would expect under prevailing wind conditions better than 90% of the population would try to leave.

The major datum, TMI-2 experience, appears to extrapolate to this level for the accident postulated.

14-4. Which specific work and living habits do you consider to have been inadequately addressed in the time study?

A substantial fraction of family members in the EPZ are employed in the larger communities of Charlotte and Rock Hill. If the evacuation notice comes during the work day, many of these persons will seek to rescue the family member or members left in the EPZ without transportaion. Many will find the proffer of bus transportation to their families neither reassuring nor persuasive, and, regardless of the message, will return to the EPZ. This is meant as an example of a larger class. As to living habits: there are those who do not tune in to the electronic media; who are outdoors working farms or gardens; who are not enough in the informational mainstream to comprehend and/or respond to the warning message.

14-5. What evacuation time will your witness estimate for peak Carowinds and Heritage Village crowds?

I do not know.

14-6. Please explain in detail how you arrived at a 33 hour evacuation time for the plume EPZ, giving all of the steps, factors, and assumptions and references for each involved in arriving at this estimate. Explain and provide any reference for your 600 vehicles/lane/hour figure. What percentage of the population do you estimate would be evacuated within 4 to 6 hours?

The numbers cited were given by Dr. Plotkin in a letter. We do not have the detailed basis by which 33 hours was arrived at. We are similarly unable to answer the remaining two questions.

14-7. Please define what exactly you mean by "worst case conditions", whether you contend that such conditions may warrant alternative actions to evacuation and state what percentage of the time during a typical year conditions more favorable to more rapid evacuation than your worst case conditions would prevail.

Worst case conditions involve a release of the magnitude of a maximum credible release with stagnation which is present about 15% of the time and/or prevailing wind direction, 35% of the time, accompanied by rain over Charlotte. Depending on a number of variables, time-of-day or night, road conditions, fog; the best response will be predicated on the actual situation. Sheltering in some parts of the plume path for a very carefully determined length of time, certainly a scenario that would not embody traffic congestion, would in some cases be best. Rapid evacuation, to the extent it could be effected, would be optimal for some areas. I do not understand the last part of the question.

15-1. Do you have information on the number of families within the EPZ without vehicles? If so, please provide such information and indicate whether such families are without vehicles all of the time or only for part of the time. Please provide any such data as to Mecklenburg, Gaston and York Counties.

I have no basis for challenging Voorhees, Table 2. This would indicate there are 9,347 residents who do not own a vehicle. Appendix B discusses multiple ownership. The weighted average of 30% single car owners suggests that as many as 40% of households could be without a vehicle on site. Data for Mecklenburg, Gaston and York counties are given on p. B-1.

15-2. What, if any, changes in the State and Local emergency plans do you contend should be made to take into account the rural nature of large segments of these areas? What is the basis for your answer?

I am not certain that planning can effectively deal with many of the problems--though it is better than no planning at all. In my view the best answer is one that would not pose the problem. I have sought to realize this answer since Catawba was first noticed for a construction permit. I do not believe that it is CESG's burden nor within the scope of its resources to determine all the information needed to address all of the problems relating to lessen the harm to people and environment which would result from an accidental release of activity. I am at a loss as how best to better protect the rural population. One answer would be a "beeper" for each individual capable of responding to it, preferably an instrument giving a message rather than just an alerting tone. But if a utility and government put peoples lives at risk, the least they can do is improve the margin of protection.

15-3. What, if any, changes should be made to State and Local emergency plans to take into account lower income communities which may exist within these areas? What is the basis for your answer?

Similarly to my response to 15-3, a message approach by personal radio would be an improvement. Specifics could be provided for assembly points, instructions as to urgency could be given.

15-4. What percentage do you contend should be utilized in the evacuation time studies as to the number of families without vehicles? What is the basis for your answer?

Up to 40%. See response to 15-7.

15-5. Do you contend that using school buses to provide transport for those without their own transportation is inadequate even when adult drivers are utilized? Please explain your answer.

Just consider a 3 AM pickup during a raging blizzard with a foot of snow already on the ground. Or an ice storm followed by a drizzle insuring maximum slipperiness. But what is the capacity of school buses in regard to the number needing movement? Voorhees points out that two trips will be required to evacuate the schools. Depending on the rate at which the release occurs, the second run, possibly even the first, could be infeasible.

15-6. What specific hospitals, nursing homes, and day care facilities do you contend may not have adequate transportation available for evacuation?

In the absence of a tabulation of on site transportation capacity in relation to population, see Voorhees Table 3, pp. 19 and 20, I cannot make a judgment. The burden is on the proponents to show that adequate capacity is on site.

15-7. Do you contend that the State and Local plans should include measures to prevent parents from personally picking up their children from schools? What measures would you consider appropriate?

No. Parents should be encouraged to pick up their children. All the plans are totally deficient in that they fail to address psychological trauma. Separation of children from parents under conditions in which adults may be panicing is inviting trauma.

15-8. Can you cite any factual data on previous emergency evacuations to support your assertion that many citizens will likely not leave their homes when faced with a major threat? What basis is there for believing that Southerners or persons of a particular heritage (you

refer to "Scotch Irishmen") are less likely to evacuate in the event of an evacuation order?

Harry Truman at Mount St. Helens is a notable example. Just as many nuclear utility executives are too hard-headed to realize the great hazard associated with nuclear generation, there are most likely to be people who won't believe that an invisible cloud and maybe some dust can affect them. I do not claim that the scotch-irish have a corner on blind stubborness, but I am enough of that heritage, and familiar with others of the same, to give this notion credence.

15-9. What specific counties or school systems do you contend lack adequate buses for evacuating school children? What is the basis for the alleged lack of adequate buses?

I do not have county by county information on the ratio of school bus capacity to enrollment but have a pending discovery request for that information. Voorhees' statement that two bus trips will be required is persuasive, as well as the need to bring in buses from other counties, pp. 69 and 66.

15-10. What specific bases do you have for believing that the State and Local emergency plans would not be effectively implemented to protect the residents of the areas in question?

I expect that, if the accident is serious and the release prompt, that most of those slated for emergency work will opt to save themselves. At which point the less than adequate paper plan will fall completely apart.

18-1. What studies or other data support your contention that local phone systems are inadequate to handle the volume of phone calls in an emergency? What assumptions have you made about essential versus nonessential use of telephones in the event of an evacuation order?

I have tried to reach members of my family during a Florida hurricane. The lines were not down. But the circuits were saturated for the better part of a day. I have a pending discovery request in regard to the actual capabilities of phone service. I assume that, regardless of requests or warnings, a majority of the population will, during a workday, seek to use the phone. Even at night and on holidays relatives will be called. "Can we stay with you?" If emergency phoning is to be relied on, it must be through dedicated circuits.

18-2. Do you contend that notification of emergency personnel should be accomplished by some other means than by telephone? Please explain your answer.

Dedicated circuits for telephone or dedicated channel radio communication will, after the first siren sound, be essential.

18-3. Do you contend that notification of school bus drivers should be accomplished by some means other than by telephone? Please explain your answer.

Yes. Once the public knows an emergency has been declared the phone system will become useless--as for notifying drivers who, with the existing system, can only be called in sequence.

18-4. Do you contend that persons who have not informed authorities in advance that they will likely require transportation in the event of an emergency evacuation should have some means other than the telephone to request transportation? If so, what do you suggest?

Dedicated channel or circuit communication as foregoing.

18-5. Do you contend that transportation dependent persons will not make individual arrangements for evacuation as recommended in the revised brochure at p. 11, as follows: "If members of your family are sometimes at home without transportation, make these plans now."? If so, what is your basis?

The arrangee will not necessarily be at home, or reachable by phone at the time of the emergency. The burden of being at all times available to honor a transportation commitment is unrealistic. Some transportation dependent persons will put off making arrangements, after all Duke seems to be saying radiation is good for one; some will not have anyone to turn to; some will think they have, but the commitment will be false; some will gamble on it not happening; and some will be too proud to ask.

18-6. Do you contend that all school buses should be equipped with two-way communication systems? Please explain.

Yes. With appropriate regard for frequency assignments so that two-way communication is not unduly compromised. This will make possible reporting on location, conditions, success of mission, obstacles, alternative plans, etc.

Respectfully submitted,

Jesse L. Riley for CESG
and Palmetto Alliance

Supplemtal answer to 3-3

Since answering 3-3 foregoing, p. 4, I have received and read the 1983 revision of the South Carolina emergency plan in relation to shelters. About 104 are listed. Primary capacity is about 31,876; total capacity 72,916, and estimated evacuating sectors population is about 106,253. This represents a very substantial improvement in the number of identified shelters. It does leave unanswered questions as to the adequacy of these shelters and the supply and manning questions if they are activated.

JLR

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

'84 FEB 10 A11:07

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of	)	
	)	
DUKE POWER COMPANY, et al.	)	Docket No. 50-413
	)	50-414
(Catawba Nuclear Station	)	
Units 1 and 2)	)	

AFFIRMATION OF SERVICE

I hereby affirm that copies of CESG AND PALMETTO ALLIANCE RESPONSES TO DUKE POWER'S SECOND ROUND OF INTERROGATORIES REGARDING EMERGENCY PLANNING CONTENTIONS 1, 3, 6, 7, 8, 9, 11, 14, 15, AND 18 in the above captioned matter were served on the following by deposit in the United States mail this 6th day of February, 1984:

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