March 28, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CESG'S RESPONSE TO NRC STAFF'S FIRST SET OF INTERROGATORIES AND DOCUMENT REQUESTS ON CONTENTION DES-17 TO PA AND TO CESG

CESG responds herewith, for CESG and for Palmetto Alliance to the titled request by Staff dated March 8, 1983.

INTERROGATORY 1

Please explain fully the sequence of the weather scenario or scenarios which you intend to describe by the phrase "the extreme condition of inversion and very slow air movement," as used in the first paragraph of DES-17.

The vicinity of the Catawba plant has been characterized as one of the five regions in the continental U.S. most subject to atmospheric temperature inversions. Particularly during summer wind velocity drops to about zero in the period before and after sunset. The prevailing wind is from the south west. A most serious condition would be one in which the plume from a large radioactive release was transported over Charlotte, at which point stagnation began.

INTERROGATORY 2

The description noted above in Interrogatory 1 pertains to design-basis accidents. In addressing "the matter of assessing serious accidents," however, different descriptive terms are used - i.e., "extreme, but frequently encountered, weather conditions." Are these described "extreme" conditions the same conditions as those referred to with respect to the analysis of design basis accidents? If not, please describe fully the sequence of the weather scenario or scenarios intended by the latter descriptive terms.

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The same extreme weather scenarios are envisioned for both DBA and extreme accidents. An increment of weather severity would be rainfall while a radioactive plume containing particulates and condensibles was stagnant over Charlotte.

INTERROGATORY 3

Do you contend that any regulations, policy statement, guideline, or authority requires the Staff to utilize "the extreme condition of inversion and very slow air movement" in the analysis of design-basis accidents in the FES? If so, please identify each such requirement.

I am not concerned with whether or not inclusion of such an analysis is required of the Staff. I am concerned with the fact that it is a physical possibility with a moderately high incidence of occurrence.

INTERROGATORY 4

Do you contend that the methodology of estimating 2 hour radiation doses from design-basis accidents at the exclusion area boundary, used to arrive at Table 5.9 values is an inappropriate method of assessing the impact of design-basis accidents?

Yes.

INTERROGATORY 5

If your answer to Interrogatory 4 is affirmative, please explain fully the reasons why the methodology referred to in Interrogatory 4 does not provide an appropriate basis for determining radiation doses from design-basis accidents.

The DES states "The results also use the meteorological dispersion conditions that are an average value determined by actual site measurements." In dealing with risk in my opinion the worst case must be considered. We all know that the worst case auto accident results in death or irrecoverable serious injury. We also know that the average injury is less serious. To assess the potential impact of DBA's we should be presented with the full extent of the range of consequences, in this instance involving the most aggravating

weather condition.

INTERROGATORY 6

If your answer to Interrogatory 4 is affirmative, please describe fully the method or methods of determining radiation doses from design-basis accidents which you believe is (are) appropriate, and the basis for your belief that such method(s) is (are) appropriate.

See answer 5 foregoing for appropriateness of using extreme weather in estimating exclusion area boundary doses. As to methodology: the 2 hour radiation dose calculation assumes removal of persons from exposure in no longer than 2 hours. This may be the case most of the time. But if the release occurs during a heavy snowfall, and at an hour when no one is listening to a radio, and with sufficient acoustic deadening due to snowfall to keep sirens from being heard, a not too unusual combination of circumstances, a longer exposure period will result. An appropriate methodology would generate the worst credible case to estimate the dosage consequences of a DBA release at site boundary. I do not mean that the foregoing example is such a case, though it is more severe than the average case considered.

INTERROGATORY 7

Do you base your position that serious (beyond design-basis) accidents must consider "extreme" weather conditions as you define such term in answer to Interrogatory 2 on any regulation, guideline, policy statement or other authority? If so, please identify such authority.

No.

INTERROGATORY 8

What is the "consideration" which you believe should be accorded to (a) "extreme inversion and very slow air movement" and/or (b) "extreme, but frequently encountered, weather conditions" other than is already given in the FES with respect to design-basis and severe accidents, respectively?

By "consideation" I mean that the Staff should have identified several scenarios which were developed with the highest exposure in mind. Several of these are discussed foregoing: plume stagnating over the site boundary a rain just heavy enough to bring down radioiodine at the highest obtainable concentration, defects in warning which would result in an exposure of at least 8 hours. In severe accidents the mechanisms resulting in the highest credible deposition of particulates should also be employed. And the criterion of the exclusion area boundary should, for the most serious accidents be expanded. Doses in the emergency evacuation zone, for Rock Hill and for Charlotte should be calculated, both maximum individual and total man rem, based on a variety of evacuation assumptions.

INTERROGATORY 9

Why does not the methodology for determining the radiation doses for (a) design-basis accidents, and (b) severe accidents described in Sections 5.9.4.5(1), 5.9.4.5(3) and 9.4 adequately consider such conditions?

I surmise, but do not know, that the methodology referenced does not consider worst case conditions because the NRC still has a policy of promoting nuclear industry and does not incline to acquainting members of the public or intervenors with worst case projections.

INTERROGATORY 10

Do you contend that the environmental impacts of design-basis and severe accidents should be accounted for solely based on consideration of the "extreme" weather conditions which you state have not been adequately considered? Please explain the reasons for your answer.

The question doesn't make sense. "Account" for "impacts"? Perhaps the response to 5 addresses the matter the interrogatory had in mind.

INTERROGATORY 11

If your answer to Interrogatory 10 is affirmative, describe each of the environmental impacts which you believe should be taken into account in the FES.

See response to 8. Additionally the effect on subsequent habitability and agricultural use of land receiving particulate fallout should be examined for a range of cases: The highest level of radioactivity and the corresponding area, intermediate levels of radioactivity and corresponding greater areas; a variety of scenarios for resultant ground water and runoff concentrations of radionuclides including for all cases the relation of radioactivity to calendar time.

INTERROGATORY 12

If any of the impacts described in your answer to Interrogatory 11 are based on calculations, please provide such calculations.

Neither CESG nor PA has the resources to make specific calculations. However it is obvious in a semiquantitative sense that all of tnese scenarios would result in higher dosages than displayed in the DES.

INTERROGATORY 13

Please identify each document, correspondence or other communication, written or oral, upon which your answers to Interrogatories 1-12 are based.

The wind occurrence data of ER Table 2.3.0-2 and 2.3.0-3 were plotted by sector. The CP FES and the OL DES were relied on. Conversations too numerous to recount with a number of persons were had.

Suscribed to

Robert Guild

Robert Guild
Counsel for Palmetto Alliance

Respectfully submitted,

Jesse L. Riley

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Spokesman for CESG

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AFFIRMATION OF SERVICE

I hereby affirm that copies of "CESG's Response to NRC Staff's First Set of Interrogatories and Document Requests on Contention DES-17 to PA and CESG" in the above captioned matter have been served on the following in the U.S. mail this 28th day of March, 1983.

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