

March 9, 1983

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	
AND NORTH CAROLINA EASTERN	)	Docket Nos. 50-400 OL
MUNICIPAL POWER AGENCY	)	50-401 OL
	)	
(Shearon Harris Nuclear Power	)	
Plant, Units 1 and 2)	)	

APPLICANTS' INTERROGATORIES AND REQUEST  
FOR PRODUCTION OF DOCUMENTS TO  
JOINT INTERVENORS (SECOND SET)

Pursuant to 10 C.F.R. §§ 2.740b and 2.741 and to the Atomic Safety and Licensing Board's "Memorandum and Order (Reflecting Decisions Made Following Prehearing Conference)" of September 22, 1982, Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency hereby request that Joint Intervenors (CHANGE, CCNC, Kudzu Alliance and Wells Eddleman) answer separately and fully in writing, and under oath or affirmation, each of the following interrogatories, and produce and permit inspection and copying of the original or best copy of all documents identified in the responses to interrogatories below. In accordance with informal discussions

held among the parties, Applicants request that Joint Intervenor serve a single, consolidated set of answers and responses to these discovery requests.

Under the Commission's Rules of Practice, answers or objections to these interrogatories must be served within 14 days after service of the interrogatories; responses or objections to the request for production of documents must be served within 30 days after service of the request.

These interrogatories are intended to be continuing in nature, and the answers should promptly be supplemented or amended as appropriate, pursuant to 10 C.F.R. § 2.740(e), should Joint Intervenor or any individual acting on their behalf obtain any new or differing information responsive to these interrogatories. The request for production of documents is also continuing in nature and Joint Intervenor must produce immediately any additional documents they, or any individual acting on their behalf, obtain which are responsive to the request, in accordance with the provisions of 10 C.F.R. § 2.740(e).

Where identification of a document is requested, briefly describe the document (e.g., book, letter, memorandum, transcript, report, handwritten notes, test data) and provide the following information as applicable: document name, title, number, author, date of publication and publisher, addressee, date written or approved, and the name and address of the person or persons having possession of the document. Also

state the portion or portions of the document (whether section(s), chapter(s), or page(s)) upon which Joint Intervenor(s) rely.

Definitions: As used hereinafter, the following definitions shall apply:

"Applicants" is intended to encompass Carolina Power & Light Company, North Carolina Eastern Municipal Power Agency and their contractors for the Harris Plant.

"Joint Intervenor(s)" is intended to encompass the following organizations and individuals, jointly and severally: Chapel Hill Anti-Nuclear Group Effort, the Environmental Law Project, the Conservation Council of North Carolina and the Kudzu Alliance, including the organization, its members and its representatives, and Mr. Wells Eddleman.

"Document(s)" means all writings and records of every type in the possession, control or custody of Joint Intervenor(s) or any individual acting on their behalf, including, but not limited to, memoranda, correspondence, reports, surveys, tabulations, charts, books, pamphlets, photographs, maps, bulletins, minutes, notes, speeches, articles, transcripts, voice recordings and all other writings or recordings of any kind; "document(s)" shall also mean copies of documents even though the originals thereof are not in the possession, custody, or control of Joint Intervenor(s). A document shall be deemed to be within the "control" of Joint Intervenor(s) or any individual acting on their behalf if they have ownership,

possession or custody of the document or copy thereof, or have the right to secure the document or copy thereof, from any person or public or private entity having physical possession thereof.

The "Beir-III Report" is the 1980 report authored by the National Academy of Science's Committee on the Biological Effects of Ionizing Radiations entitled, "The Effects on Populations of Exposure to Low Levels of Ionizing Radiation."

#### GENERAL INTERROGATORIES

1(a). State the name, present or last known address, and present or last known employer of each person known to Joint Intervenors to have first-hand knowledge of the facts alleged, and upon which Joint Intervenors relied in formulating allegations in the contention which is the subject of this set of interrogatories.

(b). Identify those facts concerning which each such person has first-hand knowledge.

(c). State the specific allegation in the contention which Joint Intervenors contend such facts support.

2(a). State the name, present or last known address, and present or last employer of each person, other than affiant, who provided information upon which Joint Intervenors relied in answering each interrogatory herein.

(b). Identify all such information which was provided by each such person and the specific interrogatory response in which such information is contained.

3(a). State the name, address, title, employer and educational and professional qualifications of each person Joint Intervenors intend to call as an expert witness or a witness relating to the contention which is the subject of this set of interrogatories.

(b). Identify the subpart of the contention regarding which each such person is expected to testify.

(c). State the subject matter to which each such person is expected to testify.

4(a). Identify all documents in Joint Intervenors' possession, custody or control, including all relevant page citations, pertaining to the subject matter of, and upon which Joint Intervenors relied in formulating allegations in the contention which is the subject of this set of interrogatories.

(b). State the specific allegation in the contention which Joint Intervenors contend each document supports.

5(a). Identify all documents in Joint Intervenors' possession, custody or control, including all relevant page citations, upon which you relied in answering each interrogatory herein.

(b). Identify the specific interrogatory response(s) to which each such document relates.

6(a). Identify any other source of information, not previously identified in response to Interrogatory 2 or 5, which was used in answering the interrogatories set forth herein.

(b). Identify the specific interrogatory response(s) to which each such source of information relates.

7(a). Identify all documents which Joint Intervenors intend to offer as exhibits during this proceeding to support the contention which is the subject of this set of interrogatories or which Joint Intervenors intend to use during cross-examination of witnesses presented by Applicants and/or the NRC Staff on the contention which is the subject of this set of interrogatories.

(b). Identify the allegation(s) to which each document relates and the particular page citations applicable to the contention.

INTERROGATORIES ON JOINT CONTENTION II  
(HEALTH EFFECTS)

II-1. Specify the long-term somatic and genetic health effects caused by radiation released from the Shearon Harris facility during normal operation which you believe have been seriously underestimated.

II-2(a). State what you believe would be a correct estimation of the long-term somatic and genetic health effects of radiation released from the Shearon Harris facility during normal operation.

(b). Provide the analytical basis for your answer to Interrogatory II-2(a).

II-3. Define "latency periods," as that term is used in Contention II(a)(1).

II-4. Explain in what way the Beir-III Report incorrectly understood the latency periods for cancer.

II-5. Explain your view of the correct understanding of cancer latency periods.

II-6. Does your latency period theory apply to all forms of cancer? If not, please specify the applicable cancers.

II-7. Define "expressed dominant genetic defects," as that term is used in Contention II(a)(2).

II-8. Define "recessive genetic defects," as that term is used in Contention II(a)(2).

II-9. Explain how you would take recessive genetic effects into account in estimating long-term somatic health effects of low levels of radiation.

II-10. Explain how you would take recessive genetic effects into account in estimating long-term genetic health effects of low levels of radiation.

II-11. Describe how the consideration of recessive genetic defects would change the Beir-III Report's estimation of somatic health effects.

II-12(a). Provide what is in your view the correct estimate of somatic health effects of low levels of radiation, taking recessive genetic defects into consideration.

(b). Provide the analytical basis for your answer to Interrogatory II-12(a).

II-13. Describe how the consideration of recessive genetic defects would change the Beir-III Report's estimation of genetic health effects.

II-14(a). Provide what is in your view the correct estimate of genetic health effects caused by low-level radiation.

(b). Provide the analytical basis for your answer to Interrogatory II-14(a).

II-15. Define "supra-linear response model," as that term is used in Contention II(a)(3).

II-16. Define "threshold model," as that term is used in Contention II(a)(3).

II-17. Define "linear-or-less model," as that term is used in Contention II(a)(3).

II-18. Explain why it was incorrect for the Beir-III Report to not use a supra-linear response model to determine low-level radiation effects.

II-19. Specify how use of a supra-linear response model would change the low-level radiation effects found in the Beir-III Report.

II-20. Specify the greater radiation effects resulting from internal emitters referred to in Contention II(b).

II-21. How and by whom has the internal absorption of radionuclides been incorrectly modeled?

II-22. Explain why, in your view, the health and genetic effects of alpha, beta and neutron radiation on DNA, cell membranes and enzyme activities have been underestimated.

II-23. Specify the extent to which the health and genetic effects of alpha, beta and neutron radiation on DNA, cell membranes and enzyme activities have been underestimated.

II-24. Explain the significance of the underestimation of the health and genetic effects of alpha, beta and neutron radiation on (a) DNA, (b) cell membranes, and (c) enzyme activities.

II-25. Identify the documents or other representations by the NRC of which you are critical in Contention II(c).

II-26. What constitutes an "arbitrarily short period of time" over which to examine health effects for purposes of estimating the effects of low-level radiation?

II-27. Explain the basis for your answer to Interrogatory II-26.

II-28. What constitutes a minimally acceptable period of time in which to examine health effects for purposes of estimating the effects of low-level radiation?

II-29. Explain the basis for your answer to Interrogatory II-28.

II-30. Define "substantial increases in cancer mortality rates," as that phrase is used in Contention II(d).

II-31. Identify the specific nuclear facilities to which you are referring in Contention II(d).

II-32. Who has observed substantial increases in cancer mortality rates in the vicinity of nuclear facilities?

II-33. Identify the radionuclide concentration models used by Applicants and the NRC to which you refer in Contention II(e).

II-34. Describe the phenomenon "rainout of radionuclides or hot spots" to which you refer in Contention II(e).

II-35. Specify the extent to which the radionuclide concentration models to which you refer in Contention II(e) are underestimated because they exclude consideration of rainout of radionuclides or hot spots.

II-36. How should radionuclide concentration models take into account rainout of radionuclides or hot spots?

II-37. Describe the phenomenon whereby radionuclides are absorbed in fly ash from coal plants.

II-38. Describe the phenomenon whereby radionuclides are attached to fly ash from coal plants.

II-39. Identify the specific coal plants to which you are referring in Contention II(e).

II-40. Specify the extent to which the radionuclide concentration models to which you refer in Contention II(e) are underestimated because they exclude consideration of (a) radionuclides absorbed in fly ash from coal plants; and (b) radionuclides attached to fly ash from coal plants.

II-41. How should radionuclide concentration models take into account (a) radionuclides absorbed in fly ash from coal plants, and (b) radionuclides attached to fly ash from coal plants?

II-42. Describe the phenomenon "incomplete mixing and dispersion of radionuclides."

II-43. What causes incomplete mixing and dispersion of radionuclides?

II-44. How should radionuclide concentration models take into account incomplete mixing and dispersion of radionuclides?

II-45. Specify the extent to which the radionuclide concentration models to which you refer in Contention II(e) are underestimated because they exclude consideration of incomplete mixing and dispersion of radionuclides.

II-46. Identify the radionuclide concentration computation to which you refer in Contention II(f).

II-47. Specify all of the less reactive forms of radionuclides which you believe are used in the computation to which you refer in Contention II(f).

II-48. For each of the less reactive forms of radionuclides listed in your answer in Interrogatory II-47, specify the more reactive form(s) of radionuclides which you believe should be used in the computation.

II-49. Describe the impact on the radionuclide concentration computation to which you refer in Contention II(f) of exclusion of each of the more reactive chemical form(s) of radionuclides listed in your answer to Interrogatory II-48.

II-50. Identify all of the radionuclides to which you refer in Contention II(f) which are ignored in computing radionuclide concentrations in the environment.

REQUEST FOR PRODUCTION OF DOCUMENTS

Applicants request that the Joint Intervenors respond in writing to this request for production of documents and produce the original or best copy of each of the documents identified or described in the answers to each of the above interrogatories at a place mutually convenient to the parties.

Respectfully submitted,

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