

March 19, 1984

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSIONBEFORE 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 (SEVENTH SET)

Pursuant to 10 C.F.R. §§ 2.740b and 2.741, Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency hereby request that Joint Intervenor (Kudzu Alliance, CCNC, CHANGE/ELP & 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 the interrogatories below. 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 Intervenors 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 Intervenors 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 Intervenors rely.

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

The "FSAR" is the Final Safety Analysis Report for the Shearon Harris Nuclear Power Plant, as amended.

The "SER" is the Safety Evaluation Report related to the operation of Shearon Harris Nuclear Power Plant, Units 1 and 2, NUREG-1038 (Nov. 1983).

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

"Joint Intervenors" 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, as organizations, their members, and their representatives, and Mr. Wells Eddleman.

"Document(s)" means all writings and records of every type in the possession, control or custody of Joint Intervenors 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 Intervenors; a document shall be deemed to be within the "control" of Joint Intervenors or any individual acting on their behalf if Joint Intervenors or the individual

acting on their behalf 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.

General Interrogatories

1. Please provide supplemental answers to Applicants' General Interrogatories (Sixth Set) on Joint Contention VII, based upon any additional information obtained to date.

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, or who otherwise assisted you 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.

(c). For each such person who provided you with information upon which you relied in answering any interrogatory herein or who assisted you in answering any interrogatory herein and who is an expert (i) provide that person's expertise and facts supporting his expertise, (ii) if that person has been "retained or specially employed," state in detail the facts underlying any "retained or specially employed status," (iii) if that person's identity is being withheld, (A) explain the need to withhold such person's identity, and (B) state the

protection or privilege upon which you rely in withholding the person's identity (see Licensing Board's Memorandum and Order of May 27, 1983).

(d). For each such person who provided you with information upon which you relied in answering any interrogatory herein or who assisted you in answering any interrogatory herein and who is not an expert, identify that person in accordance with the Licensing Board's Memorandum and Order of May 27, 1983.

3. Provide the information requested in Interrogatory 2(c) and (d) above for "Alice Ace," referred to in your responses to Applicants' Sixth Set of Interrogatories.

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

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

5(a). Identify any other source of information, not previously identified in response to Interrogatory 2 or 4, 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.

Interrogatories on Joint
Contention VII (Steam Generators)

Please refer to "Joint Intervenors' Response to Applicants' Sixth Set of Interrogatories (On Joint I and VII)" dated February 22, 1984.

VII-34. Please provide complete answers to Interrogatories VII-1, VII-2, VII-3, VII-6, VII-7, VII-9, VII-10, VII-11, VII-13, VII-17, VII-18, VII-19, VII-20, VII-22, VII-24, VII-25, VII-26, VII-27, VII-28, VII-29, VII-31, VII-32, VII-33, for which you previously responded that your analysis or review was "incomplete."

VII-35. Refer to your response to Interrogatory VII-1. NUREG-1014 provides the NRC Staff analysis of the modifications to Westinghouse Model D4 steam generators reviewed by the Technical Review Committee ("TRC") of the Counter Flow Steam Generator Owner's Review Group. Appendix B to NUREG-1014 provides the independent evaluation of the TRC of the Westinghouse proposed modifications.

- (a) Identify any and all conclusions and analyses set forth in NUREG-1014 (including Appendix B), relevant to Contention VII, with which you take issue.
- (b) State in detail the factual basis for your disagreement with each conclusion and analysis identified in response to (a) above.
- (c) Do you contend that additional analyses must be performed to ensure the modifications to Westinghouse D4 steam generators, identified in NUREG-1014, are adequate to protect public health and safety?

- (d) If the answer to (c) above is other than an unequivocal negative, identify each such additional analysis and the factual basis for your proposing it.
- (e) The expanded tubes, which are part of the D4 modifications, must meet the acceptance criteria set forth in NUREG-1014, Appendix B, Section 2.4.1. (item 6) and Section 5.4.3. Do you contend that the evaluation and these acceptance criteria are inadequate?
- (f) If the answer to (e) above is other than unequivocal negative, state the factual basis for your response.
- (g) If the answer to (c) and/or (e) above is negative, explain how your response is consistent with the allegations set forth in Contention VII.

VII-36. In your Response to Interrogatory VII-1, you allege that expanding certain of the steam generator tubes will make them more subject to denting. Testing performed by Westinghouse and reported in NUREG-1014, Appendix B, Section 5.4.2, demonstrates that the tube expansion does not increase susceptibility of the tubes to denting. State the factual basis for any disagreement that you have with the analysis and conclusion set forth in NUREG-1014, Appendix B, Section 5.4.2.

VII-37. Refer to your Response to Interrogatory VII-1.

- (a) Do you contend that the 124 expanded tubes in each steam generator (after the modification to the D4 steam generator at the Harris Plant) will be susceptible to multiple tube ruptures?
- (b) If the answer to (a) above is other than an unequivocal negative, state in detail the factual basis for your answer.
- (c) If the answer to (a) above is negative, explain how your response is consistent

with the allegations set forth in Contention VII.

VII-38. Refer to your Response to Interrogatory VII-2.

- (a) State in detail the basis for your allegation that the stresses from expanding the steam generator tubes "may weaken the tube or part of it or make it more susceptible to corrosion."
- (b) The stresses on the tubes as a result of tube expansion must meet acceptance criteria, including ASME Code Section III, set forth in NUREG-1014, Appendix B, Section 2.4 and Section 5.6. Do you contend that the analysis therein and the established acceptance criteria are inadequate?
- (c) If the answer to (b) above is other than an unequivocal negative, state the factual basis for your answer.
- (d) If the answer to (b) above is negative, explain how your response is consistent with the allegations set forth in your earlier response to Interrogatory VII-2.
- (e) Do you disagree with the finding in Appendix B of NUREG-1014 (at B-101) that the expansion of the tubes will result in an increase in the tube yield strength, thereby resulting in an increase in the margin between leak and break?
- (f) If the answer to (e) above is other than an unequivocal negative, state the factual basis for your answer.
- (g) If the answer to (e) above is negative, explain how your response is consistent with the allegations set forth in your earlier response to Interrogatory VII-2.

VII-39. Refer to your Response to Interrogatory VII-3.

- (a) State in detail the factual basis for your statement that "the NUREG-1014 modifications . . . [may] weaken the tubes or make them more subject to . . . rupture due to loose objects in the steam generators. . . ."

- (b) What is the factual basis of your statement that "it may not be possible to sleeve a tube which has only been expanded at certain points?"
- (c) What is meant by the phrase "expanded evenly?"
- (d) Do you allege that the ability to sleeve an expanded tube is necessary in order to protect public health and safety?
- (e) If the answer to (d) above is other than an unequivocal negative, state in detail the basis for your answer.
- (f) Do you contend that expansion of certain steam generator tubes may affect the ability to plug such tubes?
- (g) If the answer to (e) above is other than an unequivocal negative, state in detail the factual basis for your answer.

VII-40. Refer to your Response to Interrogatory VII-6.

Interrogatory VII-6 asked you to identify the increases in occupational exposures to maintenance workers at the Harris Plant that you contend will result from operation of the Harris Plant with the proposed modifications to the D4 steam generators and to state in detail all facts which support your allegation. Your answer only talked in general about increasing radiation exposure resulting from steam generator problems. Please identify specifically how the proposed modifications to the D4 steam generators will result in any increase in the occupational exposures to maintenance workers at the Harris Plant.

VII-41. Refer to your response to Interrogatory VII-7.

What statements in SECY-82-72 do you contend show that "Harris Steam Generators cannot be operated consistent with ALARA and the public health and safety"?

VII-42. State in detail the factual basis for your statement in response to Interrogatory VII-7 that "[w]e don't believe that the proposed modifications are consistent with ALARA."

VII-43. Describe in detail your understanding of the ALARA principle as it applies to the D4 steam generator modifications, including whether you contend that ALARA is meant to preclude any radiation exposure. State the factual basis for your answer.

VII-44. In your Response to Interrogatories VII-9 and VII-13, you assume that CP&L's H.B. Robinson Unit 2 operated with AVT steam generator water chemistry. State the factual basis for this assumption.

VII-45. In your Response to Interrogatory VII-9, you link AVT water chemistry to denting of steam generator tubes.

- (a) Please list every plant at which steam generator tube denting has occurred and where the plant (i) has utilized AVT water chemistry from initial operations and (ii) is cooled with fresh water.
- (b) Describe in detail your understanding of the denting phenomenon and how AVT water chemistry is linked to denting.
- (c) Do you contend that AVT, in and of itself will cause denting?
- (d) If the answer to (c) above is other than an unequivocal negative, state the factual basis for your answer.
- (e) If the answer to (c) above is negative, explain how your response is consistent with the allegations set forth in your earlier response to Interrogatory VII-9.

VII-46. Provide any other factual basis, not discussed in your Response to Interrogatory VII-9, upon which you rely to support your allegation that the efforts to be undertaken by Applicants (see FSAR § 5.4.2.1; SER § 5.4.2) will be inadequate to minimize corrosion or cracking of the steam generator tubes. Address again, in particular, the AVT water chemistry program described in FSAR § 5.4.2.1.3.

VII-47. In response to Interrogatory VII-11, you state that you "are not sure that any available water chemistry controls by themselves will be sufficient to minimize or prevent tube corrosion or cracking" Identify any water chemistry program which you believe will acceptably minimize steam generator tube corrosion or cracking and state in detail the factual basis for your belief.

VII-48. In response to Interrogatory VII-11, you suggested "changes in the steam generator materials, use of sacrificial anodes or other modifications or outright replacement of steam generators may be required" in order to minimize tube corrosion and/or cracking. Describe in detail each such action you claim necessary or desirable and state the factual basis for proposing each such action.

VII-49. State in detail the basis for your statement in response to Interrogatory VII-11 that "[e]xpanding the tubes may actually increase susceptibility to corrosion for those tubes."

VII-50. In response to Interrogatory VII-17, you state "we believe that both the sensors and the [loose parts monitoring] system's other components should be safety grade." Please state in detail precisely which sensors and components you believe should be safety grade (including a definition of what you mean by "safety grade"), and state in detail the factual basis for this belief.

VII-51. In response to Interrogatory VII-18 you state "the whole system should be safety grade and tested for large weights." Please define specifically (a) what you mean by "the whole system", (b) what you mean by "safety grade", (c) how you contend the system should be tested for large weights, (d) what additional information would be provided that is not presently available as a result of testing with small weights and (e) how "large weights" could be found loose within the steam generator. State the basis for your answer.

VII-52. Refer to your response to Interrogatory VII-21. In view of the occupation exposures which you contend would result from the removal of discovered loose parts, do you therefore not favor the use of a loose parts monitoring system at the Harris Plant? State the factual basis for your answer.

VII-53. Do you contend that the Staff's acceptance criteria for loose parts monitoring systems, set forth in Regulatory Guide 1.133, are inadequate?

VII-54. If the answer to Interrogatory VII-53 above is other than an unequivocal negative, state in detail the factual basis for your answer.

VII-55. Do you contend that the Harris Plant loose parts monitoring system does not meet the intent of Regulatory Guide 1.133?

VII-56. If the answer to Interrogatory VII-55 above is other than an unequivocal negative, state in detail the factual basis for your answer.

VII-57. Refer to your Response to Interrogatory VII-22.

- (a) Do you contend that any radiation exposure incurred "when people work near radioactive things" violates ALARA principles?
- (b) What is the factual basis to your answer to (a) above?

VII-58. Refer to your response to Interrogatory VII-24.

- (a) Please state any and all recommendations in the Report by Science Applications, Inc. ("SAI") that you believe supports in any way the allegations set forth in Contention VII.
- (b) State in detail the factual basis for your answer to (a) above.

VII-59. Do you contend that the guidelines set forth in NUREG-0800 for steam generator tube rupture ("SGTR") analyses are inadequate?

VII-60. If the answer to Interrogatory VII-59 above is other than an unequivocal negative, state in detail the factual basis for your answer and any recommendations that you have to address the inadequacies you perceive with the NRC guidelines.

VII-61. If the answer to Interrogatory VII-59 above is negative, state how your response is consistent with the allegations in Contention VII.

VII-62. Do you contend that the SGTR analyses presented in Chapter 15 of the Harris FSAR, as amended, fail to comply with the guidelines of NUREG-0800?

VII-63. If your answer to Interrogatory VII-62 above is other than an unequivocal negative, state in detail the factual basis for your answer.

VII-64. If your answer to Interrogatory VII-62 above is negative, state how your answer is consistent with the allegations set forth in Contention VII.

VII-65. Do you contend that the offsite doses which are analyzed in the FSAR to result from an SGTR exceed applicable guidelines?

VII-66. If your answer to Interrogatory VII-65 above is other than an unequivocal negative, state in detail the factual basis for your response.

VII-67. If your answer to Interrogatory VII-65 above is negative, state how your response is consistent with the allegations set forth in Contention VII.

VII-68. Do you contend that the offsite doses resulting from an SGTR demonstrate that the Harris Plant will not ensure adequate protection to the public health and safety in the event of a tube rupture?

VII-69. If the answer to Interrogatory VII-68 above is other than unequivocal negative, state in detail the factual basis for your response.

VII-70. If the answer to Interrogatory VII-68 above is negative, state how your response is consistent with the allegations set forth in Contention VII.

VII-71. Refer to your response to Interrogatory VII-31.

- (a) Please provide the page reference in NUREG-0909 which you contend shows that multiple tube ruptures occurred at the Ginna Plant.
- (b) What, if any, statement in NUREG-0909 do you contend supports in any way the allegation set forth in Contention VII?
- (c) State in detail the basis for your answer to (b) above.

VII-72. Refer to your response to Interrogatory VII-31.

- (a) State in detail the basis for your allegation that "events like SGTR . . . release radioactivity inside containment."
- (b) State in detail the basis for your allegation that "such release of radioactivity inside containment" is not consistent with ALARA.

VII-73. Please refer to Eddleman Proposed Contention 180, which questions the ability to isolate the steam generators in a timely manner following a steam generator tube rupture.

- (a) State in detail the factual basis for the statement that "[t]he need for such isolation is clear in light of the Ginna accident, which released radioactivity to the public."
- (b) Do you disagree with the statements at p. 1-7 of NUREG-0909 that ". . . other offsite releases were estimated to be less than 25% of the limit for unrestricted areas. All releases would result in doses which were significantly less than the 10 CFR 100 guidelines"?

- (c) If the answer to (b) above is other than an unequivocal negative, state in detail the factual basis for your answer.
- (d) If the answer to (b) above is negative, explain how your answer is consistent with the allegations set forth in Contention VII (as it incorporates certain allegations set forth in Eddleman 18C).

Please refer to the "Affidavit of Robert H. Koppe" dated February 27, 1984 (hereinafter "Koppe Affidavit"), filed in support of "Applicant's Motion for Summary Disposition of Eddleman Contention 15AA" (February 28, 1984).

VII-74. The worst steam generator corrosion problems have occurred at plants which are on seawater and/or used phosphate chemistry. To date the Westinghouse three-loop plants (similar to the Harris Plant) have lost an average of 8.0% of capacity factor due to steam generator corrosion while those Westinghouse plants which have never used phosphates and are not located on seawater have lost an average of only 0.8%. Koppe Affidavit at 12-13. Do you disagree with these statements?

VII-75. If the answer to VII-74 above is other than an unequivocal negative, state in detail the factual basis for your answer. Include with your answer (a) a list of all nuclear plants which have operated only with AVT (no phosphates) water chemistry and are not cooled with sea water systems, (b) any significant tube corrosion or cracking in any plant identified in (a), (c) the reason for the tube corrosion and/or

cracking, and (d) the similarities between the steam generators in such plants and the D-4 steam generators in Harris Unit 1.

VII-76. If the answer to VII-74 above is negative, explain in detail why your answer is consistent with the allegations set forth in Contention VII.

VII-77. It is the presence of crevices (along with the use of phosphates) which is responsible for most steam generator problems at existing non-seawater plants, including Point Beach 1 and CP&L's H.B. Robinson 2, both of which are now undergoing steam generator replacement. Koppe Affidavit at 13. Do you disagree with this statement?

VII-78. If the answer to VII-77 above is other than an unequivocal negative, state in detail the factual basis for your answer.

VII-79. If the answer to VII-77 above is negative, state how your answer is consistent with the allegations set forth in Contention VII.

VII-80. Since Shearon Harris is not on seawater and will not use phosphates, its steam generator performance would be expected to be better than the historical average for all Westinghouse plants, even if nothing else changed. Koppe Affidavit at 12. Do you disagree with this statement?

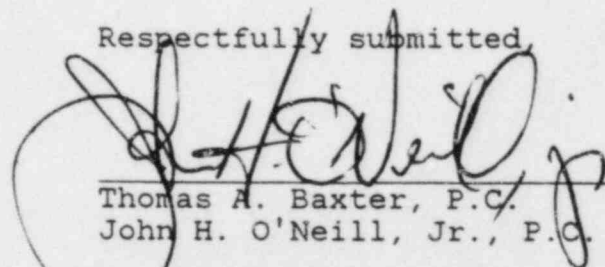
VII-81. If the answer to VII-80 above is other than an unequivocal negative, state in detail the factual basis for your answer.

VII-82. If the answer to VII-80 above is negative, state how your answer is consistent with the allegations set forth in Contention VII.

Request for Production of Documents

Applicants request that Joint Intervenor 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,



Thomas A. Baxter, P.C.
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Dated: March 19, 1984

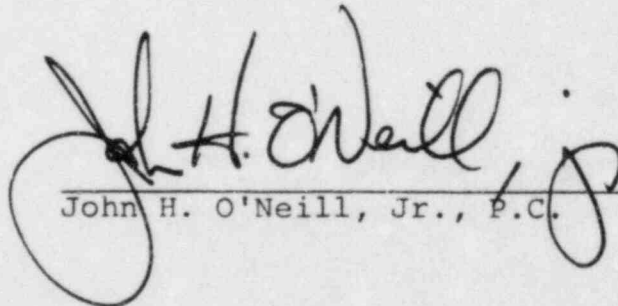
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CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Interrogatories and Request for Production of Documents to Joint Intervenors (Seventh Set)" were served this 19th day of March, 1984, by deposit in the U.S. mail, first class, postage prepaid, to the parties on the attached Service List.



John H. O'Neill, Jr., P.C.

DATED: March 19, 1984

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NUCLEAR REGULATORY COMMISSION

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