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	)	
MUNICIPAL POWER AGENCY	)	Docket Nos. 50-400-OL
	)	50-401 OL
(Shearon Harris Nuclear Power	)	
Plant, Units 1 and 2)	)	

JOINT INTERVENORS' INTERROGATORIES
TO APPLICANTS ON CONTENTIONS IV, V, AND VI (FIRST SET)

Pursuant to 10 CFR 2.740b and 2.741 and to the Atomic Safety and Licensing Board's "Memorandum and Order" of September 22, 1982, Kudzu Alliance, CCNC, CHANGE & Wells Eddleman hereby request that the Applicants 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 should the applicants or any individual acting on their

behalf obtain new or differing information concerning the responses to these interrogatories.

Terms used in these interrogatories will have the same definitions used in the Applicants' Interrogatories dated January 31, 1983.

GENERAL INTERROGATORIES

Responses to these general interrogatories shall be given for each contention, along with the responses to each specific interrogatory.

1. State the name, present or last known address, and present or last known employer of each person known to the Applicants to have first-hand knowledge on which the responses are based, in each of the contentions which are the subject to this set of interrogatories.

2. Identify those facts concerning which each such person has first-hand knowledge.

3. State the specific basis or facts which support each response.

4. State the name, present or last known address, and present or last employer of each person who provided information upon which the Applicants relied in answering each interrogatory herein.

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

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

7. Identify the contention(s) regarding which each person in Interrogatory 6 is expected to testify.

8. State the subject matter to which each person in Interrogatory 6 is expected to testify.

9. Identify all documents in Applicants' possession, custody, or control, including all relevant page citations, pertaining to the subject matter of, and upon which the Applicants relied in formulating responses in each contention which is the subject of this set of interrogatories.

10. State the specific response in each contention which Applicants contends each document supports.

11. Identify all documents in Applicants' possession, custody or control, including all relevant page citations, upon which you relied in answering each interrogatory herein.

12. Identify all other sources of information, not identified in response to Interrogatories 5, 8, and 11, which was used in answering the interrogatories set forth herein.

13. Identify all documents which the Applicants intend to offer as exhibits during this proceeding to refute contentions which are the subject of this set of interrogatories.

SPECIFIC INTERROGATORIES

14.a) Please state whether any TLD's to be used at the Harris Plant are able to give continuous remote readings of radiation.

b) If any TLD is identified above, please specify where that TLD will be used at the Harris Plant, who its manufacturer is, what its range is, how often it will be read during a general emergency, how often it will be read during normal operating conditions, and how it will be read

15.a) Please state whether continuous recording equipment is available for pressurized ionization monitors.

b) Please state whether remote reading equipment or computer readouts are available for pressurized ionization monitors.

c) Please state whether real time or remote readout capability is available for pressurized ionization monitors.

d) If any such capability as asked above is not available for pressurized ionization monitors, do Applicants believe that such an ability could be developed, or would be developed, if Applicants contracted for it with a maker of computer instrumentation or pressurized ionization monitors.

e) If the answer to subpart d above is other than affirmative, state in detail all facts which support your answer.

f) If the answer to subpart d above is affirmative in any respect, please state what increase in cost might be required and what information Applicants have which supports this answer. Please identify all documents which may support this answer.

16. Please state the following information concerning each kind of the following types of monitors or dosimeters to be employed at the Shearon Harris Plant; I) TLD's, II) continuous air monitors and portable air samplers, III) in-plant and off-site monitoring equipment that would or could be used in the event of an emergency:

a) The manufacturer or manufacturers of such monitors or dosimeters, including their address.

b) The number of each such monitors or dosimeters.

c) The accuracy of each such monitor or dosimeter together with a concise statement of how that accuracy was determined; whether the Applicants determined it or someone else determined it; what the qualifications of the person who made this determination of accuracy of this dosimeter were; when this determination of dosimeter accuracy was made; what the accuracy is in plus or minus percent, or percent

over and percent under for each of the following types of radiation:

(i) Gamma below 1mev

(ii) Gamma 1-10mev

(iii) Gamma above 10mev

(iv) Beta below 100kev

(v) Beta 100-1000kev

(vi) Beta 1000-10000kev

(vii) Beta 10000-100000kev

(viii) Beta 1000000-1000000000kev

(ix) Beta above 1000000000kev

(x) Alpha, specifying what energy ranges each dosimeter is sensitive to alpha radiation.

(xi) Neutrons, specifying what energy ranges each dosimeter is sensitive to neutron radiation.

(xii) Protons, specifying what energy ranges each dosimeter is sensitive to proton radiation.

(xiii) Any other radiations to which each dosimeter is sensitive.

For each such sensitivity range listed above, please provide a list of all documents which establish such sensitivity range. State whether each such document is in Applicants possession. Provide the names of the persons who prepared such document, a list of their qualifications if known to Applicants for preparing such document, the date such document was prepared, and whether the exact same dosimeter as referenced in the FSAR or in the answers to other sections of this interrogatory above was used in the testing that is referenced in each such document for each dosimeter.

17. FSAR 12.5.3.6.2, internal radiation exposure assessment, states that "whole body counting and/or bio assey techniques are used to compare the quantity of radioactive material present in the body to that quantity which would result from inhalation for 40 hours per week for 13 weeks at uniform airborne concentration specified in Appendix B, Table 1, Column 1 of 10 CFR 20". Please state:

a) Whether Applicants agree that this sentence appears as quoted above in the FSAR.

b) Whether Applicants consider such a dose that would result from inhalation for 40 hours per week for 13 weeks at the uniform airborne concentration maximum limits specified in Appendix B, Table 1, Column 1 of 10 CFR 20 are acceptable under ALARA.

c) If your answer to subpart b) above is other than affirmative, please state what maximum level of radioactive material present in the body is acceptable to applicants for any employee at the Harris plant.

d) State the maximum and average error of whole body counting for each radionuclide which is listed in Appendix B. Table 1, Column 1, of 10 CFR 20 for the equipment to be used at the Shearon Harris Plant.

e) Identify the manufacturer and provide a complete description of all equipment used for whole body counting, including its ability to detect radiation from each nuclide listed in Appendix B, Table 1, Column 1, of 10 CFR 20 subpart 6.

f) For each nuclide listed in response to subparts above, please state the maximum and average error of the equipment to be used at Harris for whole body counting with respect to the following nuclide concentrations:

(i) At the maximum level which would result from exposure for 40 hours per week for 13 weeks at the maximum uniform airborne concentration specified in Appendix B, Table 1, Column 1, 10 CFR 20.

(ii) At 50% of that value.

(iii) At 10% of that value.

(iv) At 1% of that value.

(v) At 0.1% of that value.

g) Explain, for each nuclide identified in response to subparts above, exactly how the concentration in the body that would result from inhalation for 40 hours per week for 13 weeks at the uniform airborne concentration specified in Appendix B, Table 1, Column 1, 10 CFR 20 was determined, and exactly who, among Applicants staff, has made this calculation; or, if it has not been made, who will make it. Give the steps in calculating it including any assumptions used and any references used. Please identify all documents or references used in making this calculation. Please state the qualifications of the person who will make or has made the calculation, and identify all other documents which contain such calculation or which support such calculation which are in Applicants possession.

18. Please state the radiation exposure which is recorded in the records of Applicants for each person who has ever worked at the Robinson Plant, the Brunswick Plant, or at any other nuclear power plant which was or is owned in part or whole by Carolina Power & Light Company or North Carolina Eastern Municipal Power Agency. If you consider that supplying this information with the name of each individual would violate any privacy consideration, please state precisely what privacy consideration is involved and give a unique number to each individual and supply the information related to that

individual in all subparts of this interrogatory below with reference to that number assigned uniquely to each individual.

a) State the total amount of internal radiation exposure for each individual, identifying the plant or plants at which such exposure occurred, and the time period over which the exposure occurred.

b) State the amount of external radiation exposure for each individual, identifying the plant or plants at which such exposure occurred, and the time period over which the exposure occurred.

c) Has Carolina Power & Light determined the error range in plus or minus percent or plus or minus millirams or over or under error of such exposure for any employees?

d) If the answer to subpart c) above is affirmative for any individual, please state for that individual the accuracy of the dose measurement as stated in the records of Carolina Power and Light.

e) For each item of information specified above, has that information been made available to the Nuclear Regulatory Commission?

f) Has the information listed in response to each subpart of this interrogatory above been made available to the individual whose exposure was being recorded, including the error information?

g) Does Carolina Power & Light possess the last known names and addresses and telephone numbers of any individuals who have ever worked in a temporary position at the Robinson Plant or the Brunswick Plant?

h) If the answer to subpart g) is affirmative, for any individual, please identify the individual by name or number.

i) What measures, if any, has Carolina Power & Light taken to guard against individuals using a false name, false I.D., or false

social security number in order to do temporary work under two or more names at its power plants. Please specify all such measures in detail. If any individuals have been detected by the measures stated in response to this interrogatory attempting to so be employed under two or more names in radiation work at either Robinson or Brunswick or both, please provide the particulars of when, where, and how such individual was detected, and identify the individual.

19. a) Do Applicants believe that ALARA does not require them to have the most accurate available instrumentation for measuring radiation exposure in areas where their employees are working?

b) If the answer to subpart a) above is affirmative, please state all facts which Applicants contend support such answer and identify all documents which Applicants believe support such answer. State whether each such document is in Applicants possession, who prepared it, when they prepared it, what their qualifications were to prepare it, and exactly how it supports Applicants answer to subpart a) above.

c) If the answer to subpart a) above is other than affirmative in any way, please state whether Applicants have obtained the most accurate portable air samplers and continuous air monitors which are commercially available.

d) If the answer to subpart c) above is affirmative, please state for each such monitor, who the manufacturer is, how many of them are available at Harris, what areas that monitor will be used in, what its accuracy is, and state also the accuracy of all other monitors for air sampling or continuous air monitoring which are

available commerically and which do not have an error range above that of this monitor. An error range above that of the monitor means one which is larger in percentage or larger in absolute amount of radiation detected than that of the monitor which Applicants propose to use at Harris.

20. a) Please state for each continuous air monitor and portable air monitor or portable air sampler to be used at Harris, and for each type of such monitor, exactly what frequency of inspection and calibration would suffice, in Applicants view, to assure their accuracy within plus or minus 5% at all times. If no such frequency of calibration and inspection exists, please so state.

b) What is the lowest range of error (plus or minus percent or plus and minus given amounts) which Applicants believe can be achieved for each type or each specific continuous air monitor or portable air monitor or portable air sampler to be used at Harris. Please identify the type of air monitor or portable air sampler and the manufacturer used in response to this question.

c) What error in sampling the concentration of air with a monitor located within 10 feet of a person working in a radiation area at Shearon Harris do Applicants believe would be introduced if the person were working closer to the radiation source than the monitor.

d) Please state the information requested in subpart c) above if the person is working farther from the radiation source than the monitor by a distance of 10 feet.

e) Please state exactly how radiation level in air varies with distance at Harris in each radiation working area if any specific relationship is known. If no such relationship is known, please state

whether Carolina Power & Light has any policy as to the placement of the portable air monitors and portable air samplers for radiation with respect to the air flow in a working area. Please identify all documents which contain or explain such policy, state who made the policy, what their qualifications were to make the policy, whether the policy originated with Applicants, with the NRC, with some industry group, or in some other place. Please state further what the maximum margin of error such policy would allow with respect to the exposure or level of concentration of airborne radioactive material which would be experienced by a person working in the area as compared to that which would be detected by the portable air sampler. If no such range has been established for error, please so state.

21. With respect to tritium,the FSAR section 12.5.2.1.7.3.4 reads in its entirety as follows: "Special air sampling. Water bubblers, dessicaant columns or cold traps are available for tritium air sampling and gas sample containers such as Marinelli containers are available for special gaseous sampling".

a) Do Applicants agree that this statement reports that section of the FSAR in full?

b) If the answer to subpart a) is other than affirmative, please state exactly what that section of the FSAR does state.

c) Please identify each such water bubbler, dessicaant column, cold traps, or gas sample container referred to above, and explain how it will be used at Harris to sample the tritium levels in air in areas where personnel are working.

d) Please state whether tritium is able to penatrate protective gear worn by personnel working in radiation areas.

e) Please state the permeability to tritium of each protective device or garment, particularly air masks, protective clothing, plastic boots, and any other protective equipment worn by persons working in Harris. State the rate of diffusion of tritium through each such material or each such item of protective equipment or protective clothing.

f) Please state the maximum concentration of tritium which can be expected to enter into the breathing apparatus of any employee temporary or otherwise, working in a radiation area at the Harris Plant.

g) Please state how long it takes to determine the concentration of tritium using each type of water bubbler, dessicaant column, cold trap, gas sample container and other procedure used for determining tritium air concentrations in work areas at Harris, and how often such determinations will be made when personnel are working in any radiation area at Harris in which tritium may be present in the atmosphere.

h) Please state if tritium in liquids or in water at Harris is monitored on any regular basis, and whether Applicants have taken any steps to measure the amount of tritium in the drinking water system at Harris on a regular basis in case radioactive materials are introduced into the drinking water system, particularly tritium. If such steps are taken, please describe them.

22. a) Will Carolina Power & Light keep records of each assessment of individual exposure to airborne nuclides under 10 CFR 20.103a3, including those assessments which indicate that an individual's intake of radioactive material would result in less intake than would result from inhalation for 2 hours in any one day, or for 10

hours in any one week, or for both, of the uniform concentration specified in Appendix B, Table 1, Column 1?

b) If the response to subpart a) is negative, will any radiation exposure, other than that inquired of above, not be recorded for any individual who may be exposed to radiation while working at the Shearon Harris Nuclear Power Plant?

c) If the answer to subpart b) is affirmative, please describe such exposure in detail, state how it will be excluded, identify the rules or regulations that permit it to be excluded, and indicate why Applicants believe that such exclusion is consistant with ALARA.

This the 27th day of June, 1983.

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document has been served by deposit in the United States Mail, first class prepaid, addressed to the parties listed below.

This the 27th day of June, 1983.

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