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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION OCT 22 10:36

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

SECRETARY  
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In the Matter of )  
DUKE POWER COMPANY, et al. )  
(Catawba Nuclear Station, )  
Units 1 and 2) )

Docket Nos. 50-413  
50-414

APPLICANTS' RESPONSES TO "PALMETTO ALLIANCE THIRD SET OF  
INTERROGATORIES AND REQUESTS TO PRODUCE"

Duke Power Company, et al. (Applicants), pursuant to 10 CFR 2.740b(b), hereby respond to "Palmetto Alliance Third Set of Interrogatories and Requests to Produce" filed September 27, 1982. Applicants' response includes the following answers and objections, as well as the accompanying Motion for Protective Order.

I.

Applicants wish to explain at the outset the approach they have taken in response to these Interrogatories. Despite their best efforts, Applicants have been unable to determine the scope of Palmetto Alliance's Contention No. 16. Since the outset of this proceeding, Applicants have endeavored to ascertain such information from Palmetto Alliance. Applicants' latest attempt was comprised of their Interrogatories and Requests to Produce, filed on August 9, 1982 ("Applicants' Interrogatories to Palmetto Alliance and Request to Produce Regarding Palmetto Alliance's Contentions 16 and 27").

In those requests, Applicants sought from Palmetto Alliance the basic information which bears directly upon the scope of the concerns, and the

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bases for those concerns, raised in Palmetto Alliance's Contention No. 16. Those requests sought no more than to elicit from Palmetto Alliance precisely how it defines the material terms which it used in its contention; the standards which it contends Applicants do not meet; why it contends Applicants do not meet those standards; what it believes Applicants must do, in light of its contention, to operate Catawba safely; and the bases (if any) for its contention. This is information available only to Palmetto Alliance, and Applicants are entitled to that information. Pennsylvania Power & Light Company, et al. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 334-335 (1980).

In its responses, filed August 30, 1982 Palmetto Alliance provided no substantive information. Instead, though representing that it had "diligently responded" to Applicants' discovery requests "to the best of its ability," Palmetto Alliance professed itself unable to respond to even the most basic questions concerning its contentions. With respect to the material terms in its contentions, Palmetto Alliance asserts that it either "lacks sufficient knowledge to answer" or that the "common meaning" of the terms is to control. "Palmetto Alliance Responses to Applicants' Interrogatories and Requests to Produce Regarding Palmetto Alliance Contentions 8, 16 and 27 and to NRC Staff's Second Set of Interrogatories and Document Production Requests," August 30, 1982.

As a result of those responses, Applicants filed on September 9, 1982 "Applicants' Motion to Compel, or in the Alternative, to Dismiss Contentions." As reflected in that pleading (pp. 4-5), Applicants believe that Palmetto Alliance's responses can lead to only one of two conclusions: either Palmetto Alliance has the information to respond to Applicants' discovery and, for whatever reason, refuses to divulge that information, in which case the

Licensing Board should order Palmetto Alliance to respond fully and completely to Applicants' discovery requests; or, alternatively, Palmetto Alliance has responded as fully as it is capable to Applicants' discovery requests, in which case its responses demonstrate conclusively not only that it cannot provide specificity with respect to the concerns raised in its contentions, but also that it has no bases for those concerns. In light of this, Applicants in their September 9, 1982 motion asked the Licensing Board either to issue an order compelling Palmetto Alliance to respond fully, completely, and adequately to Applicants' discovery requests, or, alternatively, to reconsider the admission of those contentions and upon such reconsideration, to dismiss them as issues in this proceeding. Palmetto Alliance did not respond to that motion.

Subsequent to its August 30 "Responses," Palmetto Alliance on September 22, 1982 filed additional discovery requests, essentially unlimited in scope on Applicants. Applicants responded on September 22, 1982, providing all relevant information. However, to do so, Applicants were forced to assign their own meaning to the material terms set out in Palmetto Alliance's Contention Nos. 8 and 27. On September 27, Palmetto Alliance filed discovery requests relating to its Contention Nos. 16 and 44.\* / ("Palmetto Alliance Third Set of Interrogatories and Requests To Produce"). Applicants must respond to these discovery requests by October 18. Palmetto's discovery requests are extremely broad in scope, contain numerous questions not relevant to the proceeding and otherwise improper, and numerous questions which are overlapping and repetitive.

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\* / Applicants will not respond to Palmetto Alliance's requests on its Contention No. 44 because discovery is not yet permitted on that contention. Memorandum and Order (Overruling Objections Following Prehearing Conference, Denying Requests for Referral to the Appeal Board, and Addressing Certain related Question)" (July 8 Order) at p. 18.

At the prehearing conference on October 8, 1982 the Licensing Board granted Applicants' September 9 Motion to Compel, (Tr. 630) but gave Palmetto Alliance 30 days either to file responsive answers or frame proper objections to Applicants' Interrogatories.\*/ (Tr. 628) Palmetto Alliance must make such a filing by November 8. Thus, Applicants are in the position, once again, of being required to respond to extremely broad discovery requests without any knowledge as to the concerns underlying Palmetto Alliance's contentions. It appears as though Palmetto Alliance, through its recalcitrance and refusal, or inability, to respond forthrightly to discovery, attempts to insulate itself from discovery (and indeed, from its obligations as a party to one of the Commission's proceedings) by not divulging information relevant to its own contentions, and solely within its own knowledge, while seeking unrestricted access to all information on a particular subject possessed by Applicants. It appears that by pursuing this course of action, Palmetto Alliance seeks to obtain adequate information, through discovery, to provide the specificity and bases necessary to frame an adequate contention. It is beyond dispute that such a course of conduct is proscribed. Duke Power Company, et al. (Catawba Nuclear Station, Units 1 and 2), ALAB-687, \_\_\_ NRC \_\_\_ (August 18, 1982), slip op. at 13.

Because Palmetto Alliance is unwilling, or unable, to define its own contentions, it falls to Applicants to provide those definitions for it. This procedure is necessary not only to prevent Palmetto Alliance from profiting from its own recalcitrance, but also to protect Applicants' right to assert valid

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\*/ The Licensing Board held in abeyance Applicants' motion to reconsider and dismiss Palmetto Alliance's Contentions Nos. 8, 16 and 27. (Tr. 619, 628.)

objections to Palmetto Alliance's interrogatories which they believe go beyond permissible limitations, and also to prevent Palmetto Alliance from using the discovery process to bootstrap its contentions into compliance with NRC regulations, e.g., to formulate contentions which possess the requisite specificity and bases. Thus, Applicants, in responding to Palmetto Alliance's interrogatories, will respond in light of their own reading of Palmetto Alliance's contentions, using, where appropriate, the "common meaning" Applicants ascribe to material terms in such contentions.

Palmetto Alliance Contention 16

As amended by the Licensing Board in its Memorandum and Order of July 8, 1982, the contention now reads:

Applicants have not demonstrated their ability safely to store irradiated fuel assemblies from other Duke nuclear facilities so as to provide reasonable assurance that those activities do not endanger the health and safety of the public.

In Applicants' view, Palmetto Alliance's concern in this contention is that spent fuel assemblies from Oconee and McGuire cannot be stored safely in the Catawba spent fuel pool, assuming, of course, that Applicants choose to store such assemblies at Catawba. Such a concern relates solely to the differences, if any, between the spent fuel assemblies from Catawba and those from Oconee and McGuire and whether those differences, if any, can be accommodated in the Catawba spent fuel pool. Thus, in framing responses to Palmetto Alliance's Interrogatories on its Contention No. 16, Applicants have provided only that information which relates to the safety of the actual storage, within the Catawba spent fuel pool, of Oconee and McGuire spent fuel assemblies, and whether those spent fuel pool can accommodate the physical differences, if any, in those assemblies.

## II.

### Requests to Produce

Applicants will make available for inspection and copying by Palmetto Alliance those documents, not subject to privileges or objections asserted by Applicants in the responses to individual interrogatories, identified in the responses to "Palmetto Alliance Third Set of Interrogatories and Requests to Produce." Such documents will be available, on appropriate notice, to Palmetto Alliance on and, for a reasonable period of time, after, November 1, 1982 at Duke Power Company's offices at 422 South Church Street, Charlotte, North Carolina.

## III.

### Responses to Palmetto Alliance Interrogatories

#### A. General Interrogatories

1. Please state the full name, address, occupation and employer of each person answering the interrogatories and designate the interrogatory or the part thereof he or she answered.

The initials of the person or persons providing the information used in the answers to interrogatories will be indicated in parentheses following each answer.

The business address, occupation and employer of each such person will be provided in his affidavit attached to these responses.

2. Please identify each and every person whom you are considering to call as a witness at the hearing in this matter on this contention, and with respect to each such person, please:
  - a. State the substance of the facts and opinions to which the witness is expected to testify;
  - b. Give a summary of the grounds for each opinion; and
  - c. Describe the witness' educational and professional background.

Applicants have not at this time selected witnesses to testify on the matters addressed in Palmetto Alliance Contention 16.

3. Is your position on the contention based on one or more calculations? If so:
- a. Describe each calculation and identify any documents setting forth such calculation.
  - b. Who performed each calculation?
  - c. When was each calculation performed?
  - d. Describe each parameter used in such calculation and each value assigned to the parameter, and describe the source of your data.
  - e. What are the results of each calculation?
  - f. Explain in detail how each calculation provides a basis for the issue.

This Interrogatory is not applicable. Any calculation performed by Applicants relevant to any position taken by Applicants on Palmetto Alliance's Contention 16 either is set forth or referenced in the appropriate section of Applicants' Application, Final Safety Analysis Report, or Environmental Report. Should Palmetto Alliance need further information with respect to any such calculation it may identify such calculation and address specific interrogatories to it. If those interrogatories are otherwise proper, Applicants will furnish the sought information.

4. Is your position on the contention based upon conversations, consultations, correspondence or any other type of communications with one or more individuals? If so:
- a. Identify by name and address each such individual.
  - b. State the educational and professional background of each individual, including occupation and institutional affiliations.
  - c. Describe the nature of each communication with such individual, when it occurred, and identify all other individuals involved.
  - d. Describe the information received from such individuals and explain how it provides a basis for the issue.
  - e. Identify each letter, memorandum, tape, note or other record related to each conversation, consultation, correspondence, or other communication with such individual.

Applicants object to this Interrogatory. In Applicants' view such can only be directed either to the position which Applicants have taken with respect to Palmetto Alliance's contentions before the Licensing Board in this proceeding, or to the manner, discussed above, in which Applicants have interpreted Palmetto Alliance's Interrogatories and furnished responses thereto. In either event, any conversations,

correspondence or any other type of communications are privileged, and thus not subject to discovery.

With respect to the positions Applicants have taken on Palmetto Alliance's contentions before the Licensing Board at various stages of this proceeding, such are guided by legal strategy developed in anticipation of litigation after extensive consultation among counsel for Applicants, and between and among Applicants' counsel and members of Applicants' staff, to ascertain the factual matters necessary to formulate that strategy. The positions Applicants have taken with respect to answering Palmetto Alliance's Interrogatories were formulated on the basis of discussions among counsel for the Applicants. Such positions were then communicated by Applicants' counsel, during telephone conference calls and conferences, to members of Applicants' staff to guide and aid those persons in preparing initial drafts of responses to Palmetto Alliance's Interrogatories.

In short, these positions, and thus the communications between and among Applicants' counsel and staff underlying those positions, are a direct result of Applicants' counsel, while preparing the case for litigation, "[A]ssembl[ing] information, sift[ing] what [they] consider[ ] to be the relevant from the irrelevant facts, prepar[ing] [their] legal theories and plan[ning] [their] strategy. . . ." Such preparation includes "interviews, statements, memoranda, correspondence, briefs, mental impressions, personal beliefs, and countless other tangible and intangible [actions]." Hickman v. Taylor, 329 U.S. 495, 511-512 (1945). Applicants' counsel are entitled to conduct this process "without undue and needless interference" and any communications and/or conversations conducted during that process are subject to protection under the



attorney work-product privilege. Id. at 511; see Consumers Power Company (Midland Plant, Units 1 and 2) ALAB-691, \_\_\_ NRC \_\_\_ (September 9, 1982) slip op. at 33-35.

Thus, Applicants object to this Interrogatory in that it calls for information which is privileged under the attorney work-product doctrine.

B. Specific Interrogatories

Contention 16

1. Describe in detail the design of the spent fuel pools at Catawba. Specify any changes from original design. Discuss in detail the reasons for such changes.

The Catawba spent fuel pools are described in FSAR Sections 3.8.4.1.A.2 and 9.1.2, and are shown in FSAR Figure 9.1.2-1 through 9.1.2-3. Smaller spent fuel pools were originally planned. However, when a potential need for additional storage capacity was identified, the length of the fuel pools was increased. (MCG)

2. Describe in detail the loading conditions of the spent fuel pool. FSAR 9.1.2.1(1)

See FSAR Table 3.8.1-2. (MCG)

3. Describe in detail the loading combinations of the spent fuel pool. FSAR 9.1.2.1(1)

See FSAR Table 3.8.1-2. (MCG)

4. How is the spent fuel pool protected from abnormal natural phenomenon such as tornadoes, earthquakes, etc. Explain your answer in detail. Include in your answer protection from winds, movement, as well as any missiles from such phenomena.

The spent fuel pool is designed to protect against natural phenomena, including earthquakes and tornadoes. See FSAR Section 3.7.2.1 (Seismic effects); FSAR Sections 3.3.1 and 3.3.2 (Wind effect); and FSAR Section 3.5.1.4 (Tornado missiles). (MCG)

5. Describe in detail the building enclosing the spent fuel pools. Include in your answer a complete description of the ventilation and filtration systems.

See response to Interrogatory 1. The fuel handling area ventilation system is described in FSAR Section 9.4.2. (MCG)

6. Describe in detail the cask storage area. FSAR 9.1.2.1(5)

See response to Interrogatory 1 and also FSAR Figures 9.1.2-2 and 9.1.2-3. (MCG)

7. How is this area segregated from the spent fuel pool?

The cask storage area is segregated from the spent fuel pool by a reinforced concrete wall lined with a 3/16 inch liner plate of stainless steel. There is a vertical slot in this wall to allow for the underwater passage of fuel between the pool storage area and the cask pit area. Should it become necessary, that opening is sealed by inserting a stainless steel weir gate into the vertical slot. (MCG)

8. Under what circumstances would the cask storage area be segregated from the spent fuel pool. Describe in detail all occurrences where segregation would be necessary.

The weir gate is closed prior to moving a spent fuel cask to or from the cask storage area. FSAR 3.8.4.4. Should it be necessary to dewater the cask storage area, the weir gate is inserted in the vertical slot to seal that area from the spent fuel pool storage area. (MCG)

9. Explain in detail the procedures used in segregating the cask storage area from the spent fuel pool.

The weir gate would be inserted into the vertical opening by using the auxiliary hoist; an inflatable gate seal will be activated; and the cask storage area will be pumped dry. (MST)

10. Describe in detail the instrumentation used to monitor the water level in the spent fuel pools. Include in your answer the design, manufacturer, model number, operation, functions, capabilities, limitations and components of the instrumentation.

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The spent fuel pool level instrument loop is comprised of a pneumatic level transmitter, two (2) pneumatic pressure switches, a pneumatic-to-electric transducer, and an electric receiver gage. See FSAR Section 9.1.3.2.6.1.

Applicants object to providing any further information on this interrogatory on the grounds that such information is irrelevant to the subject matter of Contention 16, that the disclosure of the information requested would not be reasonably calculated to lead to the discovery of admissible evidence, and that to produce such information would subject Applicants to undue burden.

The Commission's rules permit discovery only of information or documents "relevant to the subject matter involved in the proceeding," and further limit the term "subject matter" to the contentions admitted by the presiding officer. 10 CFR 2.740(b)(1); Allied-General Nuclear Services (Barnwell Fuel Receiving and Storage Station), 5 NRC 489, 491-492 (1977). The Appeal Board and Licensing Boards have consistently applied the rules in this fashion in ruling on discovery matters. See, e.g., Commonwealth Edison Company (Zion Station, Units 1 and 2), ALAB-196, 7 AEC 457, 470-471 (1974); Boston Edison Company, et al. (Pilgrim Nuclear Generating Station, Unit 2), LBP-75-42, 2 NRC 159, 168-171 (1975); Pacific Gas & Electric Company (Stanislaus Nuclear Project, Unit 1), LBP-78-20, 7 NRC 1038, 1040-1041 (1978); Pennsylvania Power & Light Company, et al. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 330 (1980). In determining relevance for the purpose of discovery, it is necessary to examine the issues involved. Stanislaus, supra at 1040. If, on examination, all or a part of the discovery sought is not relevant, then it is improper, and an

objection on those grounds will properly lie. Where such an objection is proper, to provide the information objected to would subject the party lodging such objection to annoyance, embarrassment, oppression, or undue burden or expense.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Applicants have described the instrumentation in question to be used to monitor the water level of the spent fuel pools at Catawba. The "design, manufacturer, model number, operation, functions, capabilities, limitations and components of the instrumentation" are not encompassed by this concern. Were Applicants to provide such information they would be subjected to annoyance, oppression, undue burden and expense. Moreover, such information is not relevant to the subject matter of this contention, nor would its discovery be reasonably calculated to lead to the discovery of admissible evidence. (REH)

11. Has this instrumentation been used or is it in use at other plants operated by the Applicant?
  - a. If so, describe its performance. Include any and all problems and/or malfunctions of this instrumentation.
  - b. If not, describe in detail all differences in the instrumentation to be used at Catawba from all other plants operated by the Applicant. Explain in detail why these differences exist.

Applicants object to this Interrogatory on the grounds set forth in response to Interrogatory 10, i.e., that it is irrelevant to the subject matter of Contention 16, that the disclosure of the information requested would not be reasonably calculated to lead to the discovery of admissible evidence, and that to produce such information would subject Applicants to undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee

and McGuire at Catawba. Applicants' FSAR describes the instrumentation in question which will be used at Catawba plant. Whether or not the same, or similar, or different, instrumentation is or has been used at Duke facilities other than Catawba is clearly beyond the scope of this concern. Were Applicants to provide the information sought herein they would be subjected to annoyance, oppression, undue burden and expense. Moreover, such information is not relevant to the subject matter of Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence.

12. Describe in detail the instrumentation used to monitor the radiation level in the spent fuel area. Include in your answer the design, manufacturer, model number, functions, capabilities, limitations and components of this instrumentation.

See FSAR Sections 11.5.1.2.2.4 and 12.3.4.1.1.

Applicants object, on the grounds set forth in the response to Interrogatory 10, to providing any further information on this interrogatory. Such information is irrelevant to the subject matter of Contention 16, the disclosure of the information requested would not be reasonably calculated to lead to the discovery of admissible evidence, and to produce such information would subject Applicants to undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Applicants' FSAR describes the instrumentation to be used to monitor the radiation level in the spent fuel pools at Catawba. The "design, manufacturer, model number, functions, capabilities, limitations and components of this instrumentation" is not encompassed by this concern. Were Applicants to provide such information they would be subjected to annoyance, oppression, undue burden and expense. Moreover, such information is not relevant to the

subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. (MLC)

13. Has this instrumentation been used or is it in use at other plants operated by the Applicant?
  - a. If so, describe its performance. Include any and all problems and/or malfunctions of this instrumentation at other Duke facilities.
  - b. If the answer is negative, describe in detail all differences in the instrumentation to be used at Catawba from all other plants operated by the Applicant. Explain in detail why these differences exist. Give different models/designs of the instrumentation.

Applicants object, on the grounds set forth in the response to Interrogatory 10, to this Interrogatory, as it is irrelevant to the subject matter of Contention 16, disclosure of the information requested would not be reasonably calculated to lead to the discovery of admissible evidence, and the production of such information would subject Applicants to undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Applicants' FSAR describes the instrumentation in question to be used in the Catawba plant. Whether or not the same, or similar, or different, instrumentation is or has been used at Duke facilities other than Catawba is irrelevant to that concern. Were Applicants to provide the information requested they would be subjected to annoyance, oppression, undue burden and expense. Moreover, such information is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence.

14. Discuss in detail the "pool leakage rate". FSAR 9.1.2.1(8) Include in your answer all assumptions, computations, and calculations used in determining this rate.

The response to this Interrogatory will be provided at a later date.

15. Describe in detail the environmental, health, and safety effects if the pool leakage rate is greater than anticipated.

The response to this Interrogatory will be provided at a later date.

16. Describe in detail the storage cell for the fuel assembly. Include the expected life span of the storage cell, operating flow rate and minimal flow rate acceptable.

See FSAR Sections 9.1.2.1(8) and 9.1.2.2 and FSAR Figures 9.1.2-1 and 9.1.2-8. The life span of the storage cells will be at least equivalent to the term of the Catawba operating license. (MCG)

17. Identify all documents, studies, technical reports and treatises which provided the Applicant the underlying basis for its criticality analysis of the Catawba spent fuel storage pools.

- (1) 10CFR, Part 50 - General Design Criteria #63 - "Monitoring Fuel and Waste Storage"
- (2) Regulatory Guide 1.13 - "Fuel Storage Design Basis"
- (3) ANSI N210 - "Design Objectives for LWR Spent Fuel Storage Facilities at Nuclear Power Station", Jan. 1975
- (4) ANSI N18.2 - "Nuclear Safety Criteria for the Design of Stationary PWR Plants", Jan. 1973
- (5) ANSI N16.5 - "Guide for Nuclear Criticality Safety in the Storage of Fissile Material", 1975
- (6) 10CFR, Part 50 - General Design Criteria #62 - "Prevention of Criticality in Fuel Storage and Handling"

Applicants object to identifying any documents other than those listed above in response to this Interrogatory. Palmetto Alliance has asked Applicants to provide "all documents, studies, technical reports and treatises which provided the Applicant the underlying basis for its criticality analysis of the Catawba spent fuel storage pools." Applicants have attempted to address Palmetto Alliance's concerns to the best of their ability within the time allowed by providing a list of the significant documents relied upon. To comply literally with Palmetto Alliance's requests, however, would be to require Applicants to identify a myriad of additional documents, including, but not limited to, textbooks, technical journal articles, magazine articles, etc. This would clearly go far beyond the proper scope of Palmetto Alliance's Contention 16, (as set forth in the

response to Interrogatory 10), and would constitute a substantial and unwarranted burden upon Applicants.

Applicants are under no obligation to serve as a technical library for Palmetto Alliance. As noted above, to provide further information in response to this Interrogatory would cause Applicant annoyance, oppression, undue burden and expense. Further, such information is not relevant to the subject matter of Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. (NTS)

18. How do the racks maintain separation between spent fuel assemblies sufficient to maintain a subcritical array? Include all assumptions, computations, and calculations used in determining that the separation provided is sufficient to achieve subcritical array.

The spent fuel storage racks maintain a nominal 13.5-inch center-to-center spacing of spent fuel assemblies. The criticality analysis is contained in Section 9.1.2.3.1 of the FSAR. (NTS)

19. Describe in detail how insertion of fuel in other than designated positions is to be prevented. Has there ever been such an improper insertion. Explain your responses in detail, identifying all documents, studies, technical reports, testimony and oral communications.

The measures to assure that spent fuel assemblies will be inserted in designated location is set out in FSAR Volume 13, Response to C 410.11.

Applicants object, on the grounds set forth in the response to Interrogatory 10, to providing any further information in response to this Interrogatory. An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Applicants have described the methods by which it will be assured that spent fuel assemblies will be inserted in only the designated positions in the Catawba spent fuel pools. Palmetto Alliance has asked "Has there ever been such



an improper insertion?" with respect to the spent fuel pool at any operating nuclear power plant. Such an inquiry is not relevant to the subject matter of this contention, which is framed in the context of the operating license proceeding for the Catawba Nuclear Station. In any event, to respond to this question would require Applicants to obtain information relating to every spent fuel pool at every nuclear reactor currently operating. An inquiry of this scope is clearly improper in light of the concern expressed in Palmetto Alliance's Contention 16. In responding to Palmetto Alliance's discovery requests Applicants are obligated only to provide information in their control, not privileged, relevant to the subject matter of the contention. Applicants are under no obligation whatsoever to conduct an inquiry of the scope contemplated by this inquiry, and Applicants refuse to do so. To provide such information would subject Applicants to annoyance, oppression, undue burden and expense. Moreover, such information is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the disclosure of admissible evidence. (MST)

20. What quantity of fuel is to be stored at each pool at the Catawba facility?  
See FSAR Section 9.1.2.2. (RGS)
21. What are the shielding requirements for the Catawba spent fuel pools?  
The shielding requirements are that a gamma dose rate of less than 2.5 millirems per hour be maintained to access areas. 10 CFR Part 20.  
(RGE)
22. List all regulatory requirements for questions above. Describe in detail any deviation from regulatory requirements. Identify all documents, testimony, oral communications, studies, treatises and technical reports relied on by the Applicant in responding to the above questions.

10 CFR Part 50, Appendix A General Design Criteria 2, 4, 5, 61, 62 and 63. The documents relied on for individual responses are identified in those responses. (RWO)

23. What provisions have been made to store control rods and burnable poison rods?

Applicants object to this Interrogatory on the grounds set forth in Inventory 10, as the information sought is irrelevant to the subject matter of Contention 16, disclosure of such information would not be reasonably calculated to lead to the discovery of admissible evidence, and production of such information would subject Applicants to undue burden. An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given such a concern, the only relevant areas of inquiry are facts relating to the actual storage of Oconee and McGuire spent fuel at Catawba, the differences (if any) between the fuel assemblies at Catawba and those at the other two facilities, and whether any such physical differences can be accommodated by the Catawba spent fuel pool.

Accordingly, an inquiry into "what provisions have been made to store control rods and burnable poison rods" is clearly beyond the scope of Palmetto Alliance's Contention 16, in that it is unrelated to possible differences in the fuel assemblies from Oconee and McGuire which might be stored at Catawba. The information solicited in Interrogatory 23 is not relevant to the subject matter of Palmetto Alliance Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. For Applicants to provide such information would be to subject them to annoyance, oppression, undue burden and expense.

24. How many fuel storage racks are provided in each spent fuel pool at Catawba?

There are provisions for 28 racks in each Catawba spent fuel pool. (MCG)

25. Where are the spent fuel pools located in the facility complex?

See Figures 1.2.2-3 through 1.2.2-7 of the FSAR. (RWO)

26. What are the dimensions of the spent fuel pools?

See Figures 9.1.2-2 and 9.1.2-3 of the FSAR. (MCG)

27. Describe in detail the design, fabrication and installation criteria for the fuel pool liner. Do these criteria meet all regulatory requirements? If not, describe any deviations. Specify all requirements applicable.

The fuel pool liner plate is design d, fabricated, and installed as a Category 1 structure. It meets all applicable regulatory requirements. See FSAR Section 3.8.4, and FSAR Table 3.8.1-1. The applicable regulatory requirements are in General Design Criteria, 10 CFR Part 50, App. A, Criterion 2. (MCG).

28. Describe in detail the provisions made to allow coolant water to flow around the assemblies. Include dimensions and locations of any openings in the storage cell and/or fuel assembly support.

See FSAR Figures 9.1.2-1 and 9.1.2-8. Each individual fuel storage cell has a 5½" diameter flow inlet to allow coolant flow through the fuel assembly. There is a separation of 5 inches between the pool floor and the rack module bottom to allow coolant flow to the fuel storage cells. Also, there is a separation of approximately fifteen inches between the pool wall and the sides of the rack modules to allow coolant flow to the bottom of the pool. (NTS)

29. Describe in detail the lead-in assembly used to guide the fuel to its proper storage location.

A lead-in assembly is provided at the top of each rack. The lead-in assembly is flared 30° from the vertical with a minimum displacement of

1½" horizontal. See FSAR Section 9.1.2.2 and FSAR Figures 9.1.2-1 and 9.1.2-8. (MCG)

30. What is the center-to-center distance between assemblies?

See FSAR Section 9.1.2.3. (MCG)

31. Describe in detail the process used in determining that this distance is sufficient.

See Section 9.1.2.3.1 of the FSAR. (NTS)

32. Describe in detail the tests performed on the spent fuel storage racks in the shop after fabrication and in the spent fuel pool to insure that there are no drag forces in excess of 50 pounds during removal at fuel assemblies from storage racks. FSAR 9.1.2.3 How was the figure of 50 pounds determined? Why was this figure used as a cut-off? Include all assumptions, calculations and computations utilized.

The test in the spent fuel pool was conducted by inserting and removing dummy fuel assemblies into each fuel cell opening and measuring the actual drag forces seen. A slightly oversized cell was used in this test to verify that the drag forces would be less than 50 pounds. The request with respect to 50 pounds will be provided at a later date. (MCG)

33. Why were the materials used in the fabrication of the racks not designed or fabricated per ASME code? Explain in detail.

At the time the racks were designed and fabricated there was no NRC requirement that the materials comply with ASME codes. (MCG)

34. Describe in detail the Applicant's procedure for seismic design. Discuss fully in your response any deviation from regulatory requirements and/or guidelines.

See FSAR Section 3.7. (MCG)

35. What procedures and assumptions were used in determining that impact loads of fuel assemblies onto cell walls were insignificant? Explain the determination in detail.

It was concluded that impact loads of fuel assemblies onto cell walls were insignificant because of the small gap between the fuel assembly and

the cell wall, coupled with the cushioning effect provided by submergence. See FSAR Section 9.1.2.3. (MCG)

36. What would occur if the second trip-off switch on the spent fuel crane failed to operate? In your answer, provide the possibilities/probabilities of such an occurrence, the full sequence of events if it did occur, and all environmental, health, and safety effects.

Periodic tests assure that the trip-off switches on the spent fuel crane are operational. (MLC)

37. Describe in detail all steps involved in handling spent fuel from Oconee and McGuire from the time it arrives on site at the Catawba facility through the time it is placed in the spent fuel storage racks.

Prior to receipt of the fuel, checkouts will be done on cranes, ventilation, pool cooling and any lifting tools required. When the shipment arrives on site, an external inspection and HP survey of the trailer/cask will be done. The container will then be moved into the receiving area of the Fuel Building. The container is then moved to the decon area where it is vented and inspected per vendor recommendations. After being moved to the cask platform, the head is then removed from the container and the container is lowered into the lower level of the cask area. The handling tools or manipulator crane (as appropriate) will then be used to lift and place the assembly into the storage cell as designated by the Reactor Engineer. (MST)

38. What is the "Cascade Plan"? Identify any and all documents reflecting such a plan known by that name or any other regarding the management of Duke spent fuel.

Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 10, i.e., that it is not relevant to the subject matter of Palmetto Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that providing such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from McGuire and Oconee at Catawba. Accordingly, the only relevant areas of inquiry are facts related to the storage of Oconee and McGuire spent fuel at Catawba, the physical differences, if any, among the fuel assemblies at McGuire and Oconee as opposed to those at Catawba, and whether such differences can be accommodated by the Catawba spent fuel pools. Information on the "Cascade Plan" is thus beyond the scope of this contention, and is not a proper subject for inquiry. Such information is irrelevant to the subject matter of the contention, and its disclosure would not be reasonably calculated to lead to the discovery of admissible evidence. For Applicants to provide such information would subject them to annoyance, oppression, undue burden, and expense.

39. Describe in detail all available alternatives for storage of Oconee and McGuire fuel in the event storage at those facilities becomes limited. Specify any evaluations done by the Applicant on alternatives for storage, identifying all documents, technical reports, studies, treatises, testimony and oral communications involved in such evaluations.

Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 10 -- i.e., that such information is irrelevant to the subject matter of Contention 16, that the disclosure of the information requested would not be reasonably calculated to lead to the discovery of admissible evidence, and that to produce such information would subject Applicants to undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Accordingly, the only relevant areas of inquiry are facts relating to the actual storage of non-Catawba fuel at Catawba, the physical differences, if any, which exist between the spent fuel

assemblies at Oconee and McGuire and those at Catawba, and whether any such differences can be accommodated by the Catawba spent fuel pool. Requests for information on alternatives for the storage of Oconee and McGuire spent fuel are clearly not encompassed within this particular area of inquiry. Such information is not relevant to the subject matter of Palmetto Alliance Contention 16, nor would its disclosure be calculated to lead to the discovery of admissible contentions. Moreover, for Applicants to produce such information would be to cause them annoyance, oppression, undue burden and expense.

40. Have locations in the Catawba spent fuel storage pools already been designated for Oconee and McGuire assemblies?
- a. If so, describe in detail the designated locations, how these locations were chosen, and all processes and procedures used in designation and location.
  - b. If not, when will such designation take place?

(a). No.

(b). Prior to receipt of spent fuel. (MST)

41. When will the spacers required by the Oconee fuel assemblies be put into place?

Prior to arrival of the assemblies. (MST)

42. Describe these spacers in detail including in your response a full discussion of their function.

See FSAR Section 9.1.2.4 and FSAR Figure 9.1.2-6. (MCG)

43. Are spacers required to accommodate the McGuire fuel assemblies?

No. (MCG)

44. Are the McGuire assemblies identical in design to the assemblies to be used at Catawba? If not, describe in detail all differences including in your response the reasons for such differences.

The outer dimensions of the McGuire and Catawba fuel assemblies are identical. The design of the assemblies is not identical. See FSAR Table 4.1-1. (RWO)

45. How many assemblies from Oconee and McGuire does the Applicant contemplate storing at Catawba? Give the quantity from each facility.

There are no firm plans at this time to ship spent fuel from Oconee or McGuire to Catawba. (RGS)

46. When does the Applicant anticipate transporting assemblies from either facility to the Catawba facility?

See response to Interrogatory 45. (RGS)

47. Does the Applicant anticipate storing assemblies from facilities other than Oconee and McGuire at Catawba? Is there a remote possibility that this action could be considered? If so, explain in detail the facilities involved, any and all circumstances that could lead to such consideration, and the procedures that would be followed if such action were necessary.

No. (RGS)

48. Describe in detail any and all hazards associated with storing Oconee and McGuire spent fuel at the Catawba facility.

See FSAR Section 9.1.2.4 and Volume 13, Question 410.11. (RWO)

49. Describe in detail the design, function, capacities and limitations of the spent fuel pool cooling system and all of its component parts.

See FSAR Section 9.1.3 and Figures 9.1.3-1 and 2. (RCG)

50. Explain in detail how the cooling trains operate.

See FSAR Section 9.1.3.2. (RCG)

51. How is the operation of the second cooling train initiated?

The second cooling train can be placed in operation by verifying proper valve alignment to direct full flow of the second fuel pool cooling pump through its associated heat exchanger and return to the spent fuel pool and starting the second fuel pool cooling pump. (RCG)

52. Describe in detail any and all backup systems used when a cooling train malfunctions.

Should a cooling train malfunction, the second cooling train provides backup cooling capacity. (RCG)

53. Describe in detail the original design of the spent fuel pool cooling system. What changes were made, if any, to accommodate fuel assemblies



from Oconee and McGuire? Give the specific reasons why these changes were necessary.

The original design of the spent fuel cooling system is described in PSAR Section 9.1.3. No changes were made to this system to accommodate the spent fuel assemblies from Oconee and/or McGuire. However, there were changes to the system due to increased spent fuel pool size. The demineralizer size was increased to accommodate increased flow rates, the number of filters upstream and downstream of the demineralizer were doubled, the spent fuel pool cooling pumps were modified to provide additional flow, and piping was modified to accommodate the increased dimension of the pools. (RCG)

54. The Applicant's FSAR 9.1.3.1.2, Water Purification states: "The system demineralizer and filters are designed to maintain adequate purification to permit unrestricted access to the spent fuel storage area for plant personnel, provide means for purifying transfer canal and refueling pool water during refueling, and provide purification capability for the refueling water storage tank."
- a. What do you mean by "adequate purification"?
  - b. Are other means available to provide more complete purification? If so, why were these means not employed?
  - c. What would be the exposure rate to plant personnel using this system?
  - d. Describe in detail precisely how the demineralizer and filters operate. Include in your response the design, functions, capabilities and limitations of each component.

(a) "Adequate purification" is based on maintaining spent fuel pool fluid within requirements to allow unrestricted access (Due to radiation exposure rates) to the spent fuel pool areas for authorized plant personnel.

(b) & (c) Applicants object to Interrogatories 54(b) and (c) on the grounds set forth in the response to Interrogatory 10 -- i.e., that they are irrelevant to Palmetto Alliance Contention 16, that disclosure of the information sought is not reasonably calculated to lead to the discovery of

admissible evidence, and that producing such information would constitute an undue burden on Applicants.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Accordingly, the only relevant areas of inquiry are facts relating to the actual storage of non-Catawba spent fuel at Catawba, the physical differences (if any) between the fuel assemblies at Oconee and McGuire and those at Catawba, and whether any such differences can be accommodated by the Catawba spent fuel pools. The fact that there may or may not be alternative means available for providing spent fuel pool water purification, and what their attendant exposure levels might be, are clearly not within the scope of this Contention. Such information is irrelevant to the subject matter of Contention 16, and its disclosure would not be reasonably calculated to lead to the discovery of admissible evidence. Further, for Applicants to provide such information would be to cause them annoyance, oppression, undue burden and expense.

(d) See FSAR Section 9.1.3.2.2.1 and FSAR Table 9.1.3-1. (RCG)

55. What occurs if the system become inoperative? Explain in detail.

See FSAR Section 9.1.3.3.1. (RCG)

56. How will the pressure gauges of the pre and post filters of the purification loop be monitored? How often?

See FSAR Section 9.1.3.2.6.2. These gauges will be monitored routinely by Operations personnel (routinely is defined as the number of times experience shows is required to keep differential pressures within specified limits). (MST)

57. What occurs if the pressure drop across these filters is greater than 35 psi?

The purification loop filters are changed. FSAR Section 9.1.3.2.6.2.

(RCG)

58. What water level is required for radiation shielding? How was this depth determined to be necessary? What direct gamma dose will occur at this water level?

See response to Interrogatory 21. The water level necessary to maintain the gamma dose rate at less than 25 millirems per hour is twenty feet above the spent fuel assemblies. (RGE)

59. Describe in detail how system piping is arranged so that the spent fuel cannot be drained below the water level required for radiation shielding.

See FSAR Section 9.1.3.3. (RCG)

60. How is borated makeup water supplied to the spent fuel pool? Will water be supplied automatically if the level decreases to a certain level? If so, describe in detail how this automatic supply is activated and provided? What level? Are the controls to provide makeup water manually operated? If so, described in detail, the procedure used.

See FSAR Section 9.1.3.1.4.

Operations personnel control the gravity feed make-up system from the Control Room by opening valves between the Refueling Water Storage Tanks and the Fuel Pool. Level indication for both the tank and the pool are in the Control Room. (MST)

61. How is the water level in the spent fuel pool monitored?

See response to Interrogatory 10. (REH)

62. How is demineralized water supplied to the pool?

See response to Interrogatory 64. (RCG)

63. Under what circumstances would demineralized water be used as makeup water? Explain in detail.

The main mode of water loss is evaporation, which tends to concentrate boric acid in the pool. Demineralized water would be the first choice if boric acid concentration in the spent fuel pool was sufficiently high to accommodate dilution. It is the first alternate service

of makeup if borated water would normally have been used and was not available from the refueling water storage tanks. (RCG)

64. Describe in detail under what circumstances each method of makeup water is used and how each is initiated and operated.

Three sources of makeup water are provided for the spent fuel pool. Borated makeup and demineralized makeup water are described above in the response to Interrogatory 60-64. Third source is lake water from the nuclear service water system. These three sources can be used by opening appropriate valves via operator action. (RCG)

65. The following questions concern section 9.1.3.2, System Description of the Applicant's FSAR:
- a. What do you mean by "take suction"?
  - b. Do the cooling pumps operate continuously?
  - c. If so, what system is provided during maintenance of the pumps and/or in the event of a malfunction?
  - d. Describe in detail specifically how and in what combinations the water is circulated through the cooling loops and purification loop.
  - e. How many pumps are used to each spent fuel pool?
  - f. Describe in detail how the heat load is transferred to the component cooling system by the fuel pool cooling heat exchangers?
  - g. What is the precise operation and function of the component cooling system? Explain in detail.
  - h. What constitutes "adequate removal of corrosion and fission products"?
  - i. Are other means available to more completely remove corrosion and fission products? If so, why weren't they used?
  - j. How often will the pre-filter, demineralizer, and post-filter be monitored?
  - k. Describe in detail the procedures for changing the filters and demineralizer. Include how often they must be changed and how the used filters are disposed of.
  - l. Will the Pool Cooling and Purification System Control Panel be manned at all times? If not, when will it be manned?
  - m. Specify the job qualifications and job responsibilities of the person/persons responsible for manning the local control panel.
- a) "Take suction" as used is a standard phrase which specifies the source of fluid supplied to the inlet of a pump.
  - b) No. Under normal conditions, one cooling pump is in operation.
- FSAR Section 9.1.3.2.1.1.

- 1
- c) Not applicable.
  - d) See FSAR Figures 9.1.3-1 and 9.1.3-2 and Section 9.1.3.2.2.
  - e) Each spent fuel pool cooling train has one pump. FSAR Section 9.1.3.2.1.
  - f) See FSAR Section 9.1.3.2.1.1.
  - g) See FSAR Section 9.2.2.
  - h) See response to Interrogatory 54(a).
  - i) Applicants object to this Interrogatory on the same grounds as set out in response to Interrogatories 54(b) and (c).
  - j) The demineralizer will be monitored as described in FSAR Section 9.1.3.1.2. See response to Interrogatory 56.
  - k) The exhausted resin in the demineralizer is sluiced to the spent resin storage tank through an installed piping system designed for this purpose. New resin is then loaded into the demineralizer and the unit returned to service. The change frequency will be determined as discussed in FSAR Section 9.1.3.1.2. The canister filters used in the KF System will be removed using remote handling tools, placed in a lead lined transport container (with absorbent paper inside), and taken to a waste store area for processing as solid rad waste. Filters will be changed such that the maximum allowable dp is below 35 psid.
  - l) No. It will be manned when Operations make it necessary.
  - m) Applicants object to Interrogatory 65(m) on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance's Contention 16, that disclosure of the information sought would not be reasonably calculated to lead to the discovery of

admissible evidence, and that to produce such information would subject Applicants to undue burden.

An examination of Palmetto Alliances Contention 16, reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only proper areas of inquiry are facts relating to the actual storage of non-Catawba fuel at Catawba, the physical differences (if any) between the spent fuel assemblies at Catawba and those from Oconee and McGuire, and whether such differences can be accommodated in the Catawba spent fuel pools.

It is therefore clear that the information sought in Interrogatory 65(m), relating to job qualifications of Catawba personnel, is beyond the scope of Palmetto Alliance's Contention 16, and is not a proper subject for inquiry. Such information is not relevant to the subject matter of this contention; nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Moreover, for Applicants to supply such information would subject them to annoyance, oppression, undue burden and expense. (RCG; MST)

66. In the cooling subsystem of the Spent Fuel Pool Cooling System, what do you mean by "full capacity pumps" and "full capacity heat exchangers"?

"Full capacity pumps" (and "full capacity heat exchangers") means that a single pump (and a single heat exchanger) can provide design basis flow (and heat removal). (RCG)

67. Specify what occurs if one pump-heat exchanger loop is out of service for maintenance or malfunction.

See response to Interrogatory 55. (RCG)

68. Describe in detail the types of submerged debris and trash anticipated to be removed by the fuel pool cooling pump strainers.

No submerged trash or debris is anticipated in the fuel pool. However, fuel pool cooling pump strainers are installed as a matter of good engineering and operating practice. (RCG)

69. What becomes of the dissolved fission products removed by the purification subsystem from the fuel pool, canal and refueling water storage tank?

The dissolved fission products removed from the spent fuel pool, canal and refueling water storage tank will be removed by the spent fuel pool demineralizer resin. (RCG)

70. What percentage of corrosion and fission product ionic contaminants are removed from the spent fuel water of the Refueling Water System by the demineralizer?

A listing of the decontamination factor of the spent fuel pool demineralizer resins is presented below.

Anions 10  
Cs, Rb 2  
Others 10 (RCG)

71. Specify the reliability of restarting the fuel pool cooling pumps manually.

The reliability of restarting the spent fuel pool cooling pumps via manual pushbutton is very high. (RCG)

72. Describe in detail how the spent fuel chemistry requirements will be maintained.

See FSAR Section 9.1.3. (MST)

73. Explain in detail the events that occur when onsite power is lost and offsite power for the diesel generation is lost as well, identifying all health, safety and environmental effects.

Applicants object to Interrogatory 73 on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16, reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only proper areas of inquiry are facts related to the actual storage of non-Catawba fuel at Catawba, the physical differences (if any) between the fuel assemblies at Oconee and McGuire and those at Catawba, and whether such differences can be accommodated in the Catawba spent fuel pools. None of the information sought in Interrogatory 73 -- which requests "all health, safety and environmental effects" of some unspecified loss of power (the question as stated is unclear) -- is encompassed within the scope of Contention 16. The information sought by this Interrogatory is not relevant to the subject matter of the contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. For Applicants to supply such information would cause them annoyance, oppression, undue burden and expense.

74. Specify how often the instrumentation in the Spent Fuel Pool Cooling Loop, Purification Loop, and Skimmer Loop will be monitored.

FSAR Sections 9.1.3.2.6.1, 9.1.3.2.6.2 and 9.1.3.2.6.3 of the FSAR provide monitoring locations. The Control Room is a continuously manned space. Local monitors are monitored on a routine basis. See response to Interrogatory 56. (MST)

75. For each instrument, specify whether it has been used or is in use at other facilities operated by the Applicant.
- a. If so, describe its performance. Include any and all problems and/or malfunctions of each instrument.
  - b. If not, describe in detail all differences in the instrument to be used at Catawba from all other plants operated by the Applicant. Explain fully why these differences exist. Give your reasons for substitution of different models/design of the instrumentation.

Applicants object to Interrogatory 75 on the grounds set forth in response to Interrogatory 10 -- i.e., that it is irrelevant to the subject



matter of Palmetto Alliance Contention 16, that its disclosure would not be reasonably calculated to lead to the discovery of admissible evidence, and that to produce such information would subject Applicants to undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Applicants' FSAR describes the instrumentation in question to be used at the Catawba Plant. Whether or not the same, or similar, or different fuel pool instrumentation has been or is used at other Duke facilities is clearly beyond the scope of that concern. Such information is irrelevant to the subject matter of Palmetto Alliance's Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Moreover, for Applicants to provide such information would be to submit them to annoyance, oppression, undue burden and expense.

76. Provide a complete specification and analysis of the fuel storage configuration proposed for the Catawba facility and the reactivity considered. Include a diagram of the storage rack design and an indication of the center to center spacing.

See FSAR Section 9.1.2.3.1; FSAR Figures 9.1.2-1, 9.1.2-7, and 9.1.2-8. (NTS)

77. Specify the procedures used to assure that spent fuel storage cells are properly located in the pool.

The storage racks are designed and fabricated to assure that spent fuel storage cells will maintain the nominal 13.5-inch center-to-center spacing for stored spent fuel assemblies. See FSAR Section 9.1.2.2. (MCG)

78. Specify the margin to criticality afforded by the design described in the answer to question 76. Include all assumptions, calculations and computations utilized.

An estimate of the margin of criticality is determined as follows:

<u>ITEM</u>	<u>Keff</u>
Regulatory licensing limit	0.05
Margin to design target	0.043
Infinite array	0.01
3.5 w/o design instead of 3.18 w/o actual	0.013
2000 ppm boron minimum	0.20
No material between racks	0.02
	<u>0.336</u>

Therefore, the margin to criticality in the borated spent fuel pool is approximately 0.34 Keff. See FSAR Section 9.1.2.3.1 (NTS)

79. Describe and provide the specifications for the fuel storage cells currently planned for use at Catawba.

See FSAR Section 9.1.2-1 and 9.1.2-8. (MCG)

80. Has the testing program for these cells been completed? If so, describe the testing program and the results. If not, what is the expected date of completion?

See response to Interrogatory 32.

81. Will such storage cells be adequate for storage of Oconee and McGuire fuel? If not, describe what changes are necessary to accommodate Oconee and McGuire fuel. Indicate the costs involved in making such changes.

See response to Interrogatory 42.

To the extent that this Interrogatory seeks information on costs, Applicants object to it on the grounds set forth in the response to Interrogatory 10; i.e., that the information is not relevant to Palmetto Alliance Contention 16, that its disclosure would not be calculated to lead to the discovery of admissible evidence, and that the production of such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only pertinent areas of inquiry are facts relating to the actual storage of Oconee and McGuire fuel at Catawba, the physical differences, if any, between the fuel

assemblies at Oconee and McGuire and those at Catawba, and whether any such differences can be accommodated by the Catawba spent fuel pools. Inquiries as to the possible costs involved in such storage are clearly beyond the scope of this contention, which focuses on safety issues. Such information is not relevant to the subject matter of Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. In addition, for Applicants to supply such information would subject them to annoyance, oppression, undue burden and expense. (MCG)

82. Can the amount of spent fuel stored at Catawba be increased over the maximum currently projected, should an increase be determined necessary? Has the Applicant considered increasing the amount of stored fuel?

Applicants object to Interrogatory 82 on the grounds set forth in response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance Contention 16, that disclosure of such information would not be reasonably calculated to lead to the discovery of admissible information, and that to produce such information would subject Applicants to undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only proper areas of inquiry in this Interrogatory are facts related to the actual storage of Oconee and McGuire fuel at Catawba, the physical differences, if any, between the fuel assemblies at Oconee and McGuire and those at Catawba, and whether such differences can be accommodated by the Catawba spent fuel pools. Issues such as those raised in Interrogatory 82, which appears to seek information related to a possible re-racking of spent fuel assemblies at Catawba, are clearly beyond the scope of this contention.

While such issues may be relevant to future license amendments (if, indeed, such an amendment is ever sought), they are clearly not proper subjects for inquiry here. The information sought in this interrogatory is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. In addition, for Applicants to provide the information sought herein would cause them annoyance, oppression, undue burden and expense.

83. Assuming changes in rack configuration and spacing of the fuel assemblies, what is the maximum amount of spent fuel which could be stored safely at Catawba?

Applicants object to this Interrogatory on the grounds set forth in response to Interrogatory 82.

84. Described in detail the process of changing the storage racks and/or the configuration.

Applicants object to this Interrogatory on the grounds set forth in response to Interrogatory 82.

85. Does the process change as the amount of fuel in the storage pool is increased? If so, how does it change? What will be done with the spent fuel elements during any alteration of the racks?

Applicants object to this Interrogatory on the grounds set forth in response to Interrogatory 82.

86. Specify all safety procedures to be used during changes in the rack configuration.

Applicants object to this Interrogatory on the grounds set forth in response to Interrogatory 82.

87. Specify all possible hazards, including contamination of workers and the environment which might occur during the process of changing spacing and/or rack configuration.

Applicants object to this Interrogatory on the grounds set forth in response to Interrogatory 82.

88. Provide a detailed account of the costs involved in increasing the amount of fuel stored at Catawba.

Applicants object to this Interrogatory on the grounds set forth in the response, to Interrogatory 82.

89. What is the range of heat loads expected in the storage pool from Catawba fuel?

See FSAR Section 9.1.3.1.1. (MLC)

90. What is the range of heat loads expected in the storage pool when Oconee and McGuire fuels are stored? Include all assumptions, calculations and computations utilized.

See FSAR Section 9.1.3.1.1. The assumptions, calculations and computations utilized will be made available in accordance with Part II, above. (MLC)

91. Specify any changes in the cooling system which would be required to adequately cool the storage pool if/when Oconee and McGuire fuel assemblies are stored. Include the costs of any changes.

See responses to Interrogatories 1 and 53.

To the extent that this Interrogatory seeks information on costs, Applicants object to it on the grounds set forth in the response to Interrogatory 81. (RCG)

92. When does the Applicant estimate the fuel storage pools will be filled? Describe the assumptions and bases for your calculations.

Applicants object to Interrogatory 92 on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only proper areas of

inquiry are facts related to the actual storage of non-Catawba fuel at Catawba, the physical differences (if any) between the fuel assemblies at Oconee and McGuire and those at Catawba, and whether such differences can be accommodated in the Catawba spent fuel pools. Information as to when Applicants estimate that the fuel storage pools might be filled is clearly beyond the proper scope of Contention 16. The information sought by this Interrogatory is not relevant to the subject matter of the contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. For Applicants to supply such information would cause them annoyance, oppression, undue burden and expense.

93. Will both storage pools at Catawba be used to store Oconee and McGuire fuel?

If it is determined that Oconee and McGuire spent fuel should be stored at Catawba, either Catawba spent fuel pool could be used. (RGS)

94. If neither a reprocessing facility or an AFR site is licensed, will the storage pools be sufficient to store all spent fuel from Catawba and that amount from Oconee and McGuire anticipated to be stored at Catawba?

Applicants object to Interrogatory 94 on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance Contention 16, that the disclosure of the information sought is not reasonably calculated to lead to the discovery of admissible evidence, and that to produce such information would cause Applicants undue burden.

An examination of Palmetto Alliances' Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Accordingly, the only areas of information properly encompassed by this contention are facts related to the actual storage, within the Catawba spent fuel pools, of Oconee and McGuire

spent fuel assemblies, and whether the Catawba spent fuel pools can accommodate the physical differences, if any, in those assemblies. Interrogatory 94, questioning whether the Catawba spent fuel pools will be large enough to store McGuire and Oconee spent fuel in the event no AFR or reprocessing facility is available, attempts to inject into this contention issues concerning licensing of AFR's and reprocessing facilities. Such issues are clearly beyond the scope of Palmetto Alliance's Contention 16.

The information sought therefore is not at all relevant to the subject matter of the contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. In addition, for Applicants to provide such information would subject them to annoyance, oppression, undue burden and expense.

95. If reprocessing is started, when would transmitting of spent fuel begin from Oconee? From McGuire? From Catawba?

Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 94.

96. If an away-from-reactor site is licensed, will it be adequate to store all accumulated spent fuel from Duke facilities?

Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 94.

97. If the answer to the question above is negative, discuss in detail any plans for and/or consideration of increasing the capacity of the storage pools.

Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 94.

98. Discuss and describe in detail all alternatives considered by the Applicant for storage of the spent fuel if reprocessing or an AFR site are not available when capacity is reached.

Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 94.

99. How long can spent fuel be safely stored at Catawba?

Spent fuel can be safely stored at Catawba until the expiration of the facility's operating license. To the extent that this Interrogatory seeks information on the storage of spent fuel beyond expiration of the facility's license, Applicants object to the Interrogatory. The Licensing Board has clearly ruled such inquiry is beyond the scope of this proceeding. In its Order of March 8, 1982, the Board rejected a Palmetto Alliance's contention on this exact question, stating that:

Palmetto 17 would require consideration of the Applicants' provisions for caretaking of the spent fuel following the expiration of any Catawba operating license. This proceeding concerns the operation of the Catawba Station. This contention lies beyond its scope and is rejected. Moreover, the issue is generic within the nuclear power industry and is currently subject to Commission rulemaking. The Appeal Board has accordingly ruled that litigation of this topic would constitute a collateral attack on the rulemaking. Public Service Electric and Gas Co. (Salem Nuclear Generating Station), 14 NRC 43, 68-69 (1981).

Therefore, the information sought is not relevant to the subject matter of the contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. In addition, for Applicants to provide such information would subject them to annoyance, oppression, undue burden and expense. (RCG)

100. Specify all changes in the spent fuel storage pools necessary for long term storage. Include a detailed estimate of the costs involved.

Applicants object to Interrogatory 100 on grounds that it appears to seek information on the storage of spent fuel beyond the expiration of Catawba's operating license. This area of inquiry has been expressly



prohibited by the Licensing Board. See Applicants' response to Interrogatory 99.

101. Specify the decay heat removal capability of the spent fuel pool cooling system.

See FSAR Table 9.1.3-1. (RCG)

102. Specify any limitation on the decay heat input to the system.

See FSAR Section 9.1.3.1.1. (RCG)

103. Specify the spent fuel heat up time of the pools should the spent fuel pool cooling system become inoperative. Provide all calculations, studies analyses, computations, and assumptions which support this conclusion.

See response to Interrogatory 55. (RCG)

104. What is the potential for a single failure to reduce or invalidate the effectiveness of the spent fuel pool cooling system? Describe in detail all possibilities and include all assumptions, calculations, computations and studies analyses used in responding to this question.

See responses to Interrogatories 52 and 67. (RCG)

105. Provide all studies, calculations, computations, assumptions, etc. which support the conclusion that alternatives could cool the storage pool in the event of the loss of the cooling system.

Since natural convection and pool boiling provide adequate decay heat removal, the only requirement is to provide water to replace that which has been boiled off. (RCG)

106. Describe in detail all possible effects which might occur if a new spent fuel storage rack were dropped onto an existing rack containing spent fuel assemblies. Provide all calculations, computations, and assumptions used in forming your response.

There are no plans to move a "new spent fuel storage rack" over a rack containing spent fuel assemblies. (MST)

107. What procedures and mechanical devices will be used to prevent the occurrence of such an accident?

See response to Interrogatory 106. (MST)

108. What assurance does the Applicant have that movement of spent fuel assemblies in the storage racks due to either operator error or a natural disaster will not create a situation of criticality? Explain in detail.

The racks are designed to preclude insertion of fuel assemblies at other than permitted locations, thereby assuring the necessary spacing between assemblies. To further assure subcritical arrays in the fuel handling facilities, only one assembly can be manipulated at a time. An assembly dropped across the top of the racks will not create a situation of criticality. The spent fuel building is a Category 1 structure, so that it will withstand impact from any tornado generated missiles. The slight fuel movement calculated to occur during an earthquake will not create a situation of criticality. (NTS)

109. What devices are available to prevent the accidental jamming of one spent fuel assembly into another during loading of spent fuel? Do all such devices depend upon operator control or are there mechanical means to prevent jamming?

FSAR, Volume 13, Question 410.11 addresses how accidental jamming of fuel elements is prevented by mechanical means. Operational procedures call for the handling operator to verify the contents of a spent fuel storage cell prior to accessing it. (MST)

110. Does the Applicant possess mechanical means of checking and testing the operability of the fuel handling equipment and unloading cranes? If so, describe this process in detail.

Yes. The unloading crane is tested in the plant pre-operational phase to ANSI and OSHA standards. The fuel handling machine is tested prior to each refueling operation. This is accomplished by use of load test stand against which a strain is taken and the activation points of the equipment interlocks determined. (MST)

111. Are the mechanical and electrical stops on the spent fuel cranes capable of being bypassed and the crane subject to operator control only. Describe all circumstances where such a bypass would take place.

Mechanical interlocks cannot be bypassed. Electrical interlocks can be bypassed. It is necessary to bypass the electrical interlocks to access

North and South wall spent fuel storage cells, the load test stand (see response to Question 110), and the refueling canal weir gate. (MST)

112. Does the Applicant intend to conduct a training course for the handling and loading crane operators? If so, describe this course in detail.

Yes. This course consists of both classroom training with a written test and practical training followed by a verification of proficiency on the equipment. (MST)

113. Will additional training be required and provided by the Applicant for the crane operators regarding the handling of Oconee and McGuire fuel assemblies? If so, describe in detail the additional training.

No. All handling equipment and procedures are covered in the regular training course. (MST)

114. Specify the procedures for handling damaged fuel assemblies, including precautions to be taken to prevent worker or environmental contamination.

The procedure for handling a damaged fuel assembly serves to immediately isolate the assembly, minimize any possible worker exposure and prevent the spread of contamination to the environment. It accomplishes this by terminating (automatically or manually) all systems which could spread contamination (i.e., ventilation) and isolating the area (containment or spent fuel pool) by closure of accesses. Once this action has been accomplished, recovery methods are evaluated and implemented depending on the extent and type of damage to the assembly. (MST)

115. What are the radionuclide concentrations which are to be expected in the fuel pool?

The Isotopic Refueling Water concentrations resulting in 2.5 millirem per hour at the surface of the water are:

Nuclide	Refueling Water maximum concentrations (microcurie/gram)
I-131	$5.9 \times 10^{-3}$
I-133	$5.1 \times 10^{-3}$
Mo-99	$1.7 \times 10^{-2}$
Cs-134	$1.5 \times 10^{-3}$
Cs-137	$4.3 \times 10^{-3}$
Cr-51	$7.4 \times 10^{-2}$
Mn-54	$2.9 \times 10^{-3}$
Co-58	$2.5 \times 10^{-3}$
Co-60	$9.6 \times 10^{-4}$
Fe-59	$2.1 \times 10^{-3}$

Reference Table 5-38 of the Westinghouse Radiation Analysis Manual  
Standard Plant Model 412 (rev. 3, 11/78). (RGE)

116. Specify the procedures to be used to protect workers from exposure to radiation from the storage pool.

See FSAR Section 12.5. (MST)

117. Describe in detail all analyses, calculations, computations, assumptions, etc. which demonstrate that the water in the fuel storage pools will not leak into the groundwater either as a result of an earthquake, tornado, spill, other mishap or routine operation.

See response to Interrogatory 4. Design and construction to Seismic Category 1 standards precludes any leakage as a result of any lesser event, such as a "spill, other mishap, or routine operation." (MCG)

118. What procedures, including monitoring, will be used to insure against contamination of groundwater?

Monitoring of the groundwater can be accomplished by sampling both groundwater sumps within plant buildings and various wells around the site area. (MST)

119. Provide estimates of the levels of smearable contamination expected on the spent fuel transport casks. Describe in detail all procedures to prevent such contamination and to decontaminate.

Spent fuel casks are checked prior to shipment to ensure that smearable contamination does not exceed limits in 10 CFR Part 20. Should such a level be found prior to shipment, the fuel transportation cask

would be placed in the decontamination pit and cleaned to reduce smearable contamination below Part 20 levels prior to shipment. (MST)

120. Specify what consideration has been given to the potential for a loss of boron in a criticality accident.

The criticality analysis does not take credit for boron in the spent fuel pool water. See FSAR Section 9.1.2.3.1. (NTS)

121. Specify the types of casks to be used for Oconee and McGuire fuel. Describe these casks in detail, identifying design, manufacturer, Model number, operation, functions, capabilities, limitations.

This question was answered in an April 2, 1982 letter from W. O. Parker, Jr., Duke Power Company, to Harold R. Denton, NRC Director of Nuclear Reactor Regulation:

- "8. Identify the casks used for fuel shipments between Oconee, McGuire and Catawba.

Response:

Any future Oconee-Catawba spent fuel shipments would be by truck. Planning for any future McGuire-Catawba spent fuel shipments currently includes both truck and rail modes. NRC certified casks suitable for Oconee and McGuire fuel shipments are:

Truck

NAC-1, NFS-4  
NLI 1/2  
TN-8

Rail

IF-300  
NLI 10/24

Additional NRC certified casks may be available at the time of shipment. Shipments will be made only in NRC certified casks. Commercial considerations dictate that specific casks not be identified at this time." (RWO)

Applicants object to the second sentence of Interrogatory 121, on the grounds set forth in the response to Interrogatory 10 -- i.e., that the information sought is not pertinent to Palmetto Contention 16, that its disclosure is not reasonably calculated to lead to the discovery of

admissible evidence, and that to produce it would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only relevant areas of inquiry are facts related to the actual storage of non-Catawba spent fuel at Catawba, and whether the physical differences, if any, between Oconee and McGuire spent fuel and Catawba spent fuel can be accommodated by the Catawba spent fuel pool. Accordingly, the information sought here is clearly beyond the scope of Contention 16. Such information is not relevant to the subject matter of Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Further, for Applicants to provide such information would cause them annoyance, oppression, undue burden and expense.

122. What are the anticipated number of shipments to Catawba per year from Oconee? From McGuire?

Applicants objects to this Interrogatory on the grounds set forth in response to Interrogatory 10 -- i.e., that it is not relevant to Palmetto Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to produce such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated spent fuel assemblies from Oconee and McGuire at Catawba. Accordingly, the only proper areas of inquiry are facts related to the actual storage of Oconee and McGuire fuel at Catawba, the physical differences, if any, between the fuel assemblies at Oconee and McGuire and those at Catawba, and whether such

differences can be accommodated in the Catawba spent fuel pools. Clearly, the anticipated number of shipments to Catawba has no bearing on the safety concerns reflected in Contention 16. Such information is not relevant to the subject matter of Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Further, for Applicants to provide such information would be to cause them annoyance, oppression, undue burden and expense.

123. Specify all procedures to be used including those designed to protect workers, the public and the environment from contamination for unloading assemblies from Oconee and McGuire.

See response to Interrogatory 116. (MST)

124. Describe the requirements for the job of spent fuel truck driver, cask unloading and handling crane operator.

Applicants object to Interrogatories 124 and 125 on grounds of relevance. As noted above, the basic concern of Palmetto Alliance's Contention 16 is whether or not spent fuel from Oconee and McGuire can be safely stored at Catawba. Accordingly, the only pertinent areas of inquiry related to this contention are questions relating to the actual storage of Oconee and McGuire spent fuel at Catawba, the physical differences, if any, between fuel assemblies at Oconee and McGuire and those at Catawba, and whether such differences can be accommodated by the Catawba spent fuel pools. Inquiries into the job requirements for spent fuel truck drivers, cask unloaders, handling crane operators, and other workers in the spent fuel proof areas are clearly beyond the proper scope of Palmetto Alliance Contention 16. The information sought in Interrogatories 124 and 125 is not relevant to the subject matter of the contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Further, for Applicants to supply

such information would be to subject them to annoyance, oppression, undue burden and expense.

125. Specify other workers who participate in the unloading of the casks, removal of contamination and transfer to the storage pool. Describe the job requirements for each of these positions.

Applicants object to this Interrogatory on the same grounds as set forth in response to Interrogatory 124.

126. Provide an analysis of the structural design of the storage pool with respect to the design basis earthquake, assuming that the pools are filled with spent fuel.

See response to Interrogatory 4. (MCG)

127. Specify the seismic design and capability to withstand seismic events of the spent fuel pool cooling systems and components.

See FSAR Table 3.2.1-1, Table 3.2.1-2 and Table 3.2.2-2. (MCG)

128. Specify the seismic category to which the storage racks have been designed. Describe the basis for the choice of seismic category for design of the storage racks.

Seismic Category 1. (MCG)

129. Provide all analyses which demonstrate that the fuel storage racks can withstand a design basis earthquake with all the storage spaces filled with spent fuel assemblies.

See FSAR Section 9.1.2.1 and FSAR Table 3.2.1-1. (MCG)

130. Specify the estimated water pressure and its effects on the storage racks during an earthquake of the maximum intensity expected at the site.

There are no such effects. (MCG)

131. Specify the added mass effect attributable to the water pressure acting on the storage rack. Include a discussion of the lateral and vertical forces involved.

See response to Interrogatory 130. (MCG)

132. Provide the static working stress analysis for the racks to be used at Catawba.

Applicants do not understand the question. (MCG)

133. Specify the seismic category to which the spent fuel storage building is designed.



Seismic Category 1.

134. Describe the most severe natural disaster which has occurred at the site.

See FSAR Section 2. (MCG)

135. Specify the potential causes for explosions in the fuel unloading, handling and storage process and the consequences expected to result.

Applicants are not aware of any potential causes for explosions during fuel unloading, handling and storage processes.

136. Provide a detailed statement of the capital cost assignable to the spent fuel receiving and storage facility.

Applicants object to Interrogatory 136 on the grounds set forth in response to Interrogatory 10 -- i.e., that it is irrelevant to Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16, reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only areas of inquiry relevant to this safety contention are those relating to the actual storage, within the Catawba spent fuel pools, of Oconee and McGuire spent fuel, the physical differences between the fuel assemblies used at these plants, if any, and whether such difference can be accommodated in the Catawba spent fuel pools. It is therefore clear that inquiries as to the "capital costs assignable to" the spent fuel facility are totally beyond the scope of this contention, since such inquiries have no bearing on the safety of storing non-Catawba fuel storage at Catawba. The information sought in this Interrogatory is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. For Applicants to respond to this Interrogatory

would be to cause them annoyance, oppression, undue burden and expense.

137. Provide a detailed statement of operating costs for the operation of the spent fuel receiving and storage facility.

Applicants object to Interrogatory 137 on the grounds set forth in the response to Interrogatory 136.

138. Describe the diffusion and the blackness theories for testing whether criticality will occur if fuel assemblies move in the storage racks.

Applicants do not perform tests to determine whether criticality will occur if fuel assemblies move in storage racks. (NTS)

139. Have the diffusion and/or blackness theories been used in tests to determine whether criticality will occur in the Catawba storage facility? Provide the results of such tests.

See Applicants' response to Interrogatory 138. (NTS)

140. What was the heat removal capacity for which the Catawba spent fuel pool was initially designed?

Applicants object to Interrogatory 140 on the grounds set forth in response to Interrogatory 10 -- i.e., that it is irrelevant to Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only areas of information properly within the scope of this contention are facts related to the actual storage of Oconee and McGuire fuel at Catawba, the physical differences, if any, among the fuel assemblies at the three facilities, and whether such difference can be accommodated by the Catawba spent fuel pools. Thus, inquiries as to what "heat removal capacity" the Catawba spent fuel pools were initially designed for are clearly beyond the scope

of the contention. Such information is not relevant to the subject matter of Contention 16, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Moreover, for Applicants to provide such information would be to subject them to annoyance, oppression, undue burden and expense.

141. What is the heat removal capacity of the present Catawba design?

See response to Interrogatory 101.

142. How many heat exchangers of what capacity are employed?

See FSAR Table 9.1.3-1. (RCG)

143. Is this number sufficient if one heat exchanger is out of service due to maintenance or malfunction?

Yes. See response to Interrogatories 66 and 67. (RCG)

144. What water supply is provided for the spent fuel pool heat exchangers?

See FSAR Section 9.1.3. (RCG)

145. What is the design load for the Catawba spent fuel pool?

See response to Interrogatory 2.

146. What weight of fuel can the fully loaded pool accommodate  
a. with present racking - specify center to center distance,  
b. with poison racks,  
c. with pin-packing?

Because the fuel pool is founded on solid rock, the capacity is determined by the shearing strength of the concrete (which is excessive for minimum 4 foot floor thickness). The pool can accommodate any known storage system at any spacing and stacked to any height. (MCG)

147. What is the present status of the Applicant's consideration of dry storage, at  
a. Oconee,  
b. McGuire,  
c. Catawba?

Applicants object to Interrogatory 147 on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto

Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only areas of inquiry pertinent to this contention are facts relating to the actual storage of Oconee and McGuire fuel at Catawba, the physical differences, if any, between the fuel assemblies at these three facilities, and whether such differences can be accommodated in the Catawba spent fuel pool. Inquiries as to the present status of Applicants' consideration of dry storage at Oconee, McGuire and Catawba are thus clearly beyond the scope of Contention 16, which does not focus at all on the question of dry fuel storage. The information sought in Interrogatory 147 is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. In addition, for Applicants to provide this information would subject them annoyance, oppression, undue burden and expense.

148. Provide copies of any correspondence and/or memoranda relating to transmitting Duke's spent fuel to DOE for possible plutonium recovery.

Applicants object to Interrogatory 148 on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only areas of inquiry pertinent to this contention are facts relating to the actual storage of Oconee and McGuire fuel at Catawba, the physical differences, if any, between the fuel assemblies at these three facilities, and whether such differences can be accommodated in the Catawba spent fuel pool.

Documents relating to "transmitting Duke's spent fuel to DOE for possible plutonium recovery" are therefore clearly beyond the scope of Contention 16, which focuses only on the safety of storing non-Catawba spent fuel at Catawba. The information sought in Interrogatory 148 is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Moreover, for Applicants to provide this information would be to cause them annoyance, oppression, undue burden and expense.

149. What is the maximum impact that the Catawba spent fuel pool structure could withstand at its most vulnerable point? How dependent is impact resistance on the form of a missile?

Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only areas of inquiry pertinent to this contention are facts relating to the actual storage of

Oconee and McGuire fuel at Catawba, the physical differences, if any, between the fuel assemblies at these three facilities, and whether such differences can be accommodated in the Catawba spent fuel pool. Thus, the information sought in Interrogatory 149 is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Moreover, for Applicants to provide this information would be to cause them annoyance, oppression, undue burden and expense.

150. What maximum inventory of fuel radioactivity was calculated for the Catawba spent fuel pool at the CP stage?

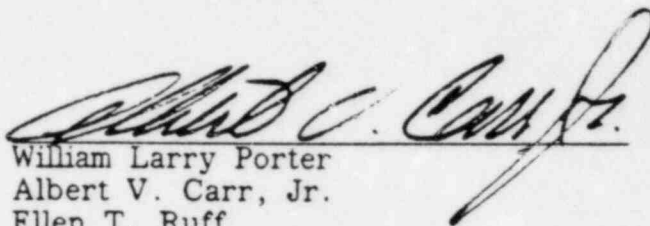
Applicants object to this Interrogatory on the grounds set forth in the response to Interrogatory 10 -- i.e., that it is irrelevant to Palmetto Alliance Contention 16, that the disclosure of the information sought would not be reasonably calculated to lead to the discovery of admissible evidence, and that to supply such information would cause Applicants undue burden.

An examination of Palmetto Alliance's Contention 16 reveals that its basic concern is the safe storage of irradiated fuel assemblies from Oconee and McGuire at Catawba. Given this concern, the only areas of inquiry pertinent to this contention are facts relating to the actual storage of Oconee and McGuire fuel at Catawba, the physical differences, if any, between the fuel assemblies at these three facilities, and whether such differences can be accommodated in the Catawba spent fuel pool. The information sought in Interrogatory 150 is not relevant to the subject matter of this contention, nor would its disclosure be reasonably calculated to lead to the discovery of admissible evidence. Moreover, for Applicants to provide this information would be to cause them annoyance, oppression, undue burden and expense.

151. What is the present estimate of maximum inventory of the Catawba spent fuel pool radioactivity for cases in which McGuire and Oconee spent fuel will also be stored?

The maximum inventory will be 1418 fuel assemblies per pool (NTS)

Respectfully submitted,



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Attorneys for Duke Power Company,  
et al.

October 19, 1982

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
DUKE POWER COMPANY, et al. )  
(Catawba Nuclear Station, )  
Units 1 and 2) )

Docket Nos. 50-413  
50-414

AFFIDAVIT

I, Michael L. Childers, being duly sworn, hereby state that I am employed by Duke Power Company as a Engineer Assistant, Design Engineering Department.

I have been responsible for furnishing the basic information used in responding to those Interrogatories on Palmetto Alliance Contention 16 by which my initials appear. Those responses are true and correct to the best of my knowledge and belief.

Michael Childers

Subscribed and sworn to before  
me this 18<sup>th</sup> day of October,  
1982.

Margaret S. Henderson  
Notary Public

My Commission expires: 4-26-83



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

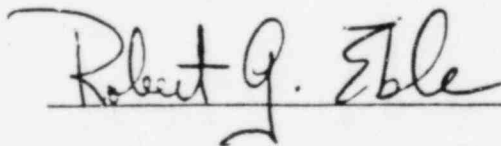
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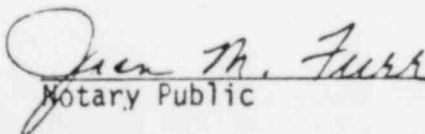
AFFIDAVIT

I, Robert G. Eble, being duly sworn, hereby state that I am employed by Duke Power Company as a Engineer Associate, Design Engineering Department.

I have been responsible for furnishing the basic information used in responding to those Interrogatories on Palmetto Alliance Contertion 16 by which my initials appear. Those responses are true and correct to the best of my knowledge and belief.

  
\_\_\_\_\_

Subscribed and sworn to before  
me this 18 day of October,  
1982.

  
\_\_\_\_\_  
Notary Public

My Commission expires: 10-27-85

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
DUKE POWER COMPANY, et al. )  
(Catawba Nuclear Station )  
Units 1 and 2 )

Docket Nos. 50-413  
50-414

AFFIDAVIT

I, Robert C. Gamberg, being duly sworn, hereby state that I am employed by Duke Power Company as a Design Engineer I, Design Engineering Department.

I have been responsible for furnishing the basic information used in responding to those Interrogatories on Palmetto Alliance Contention 16 by which my initials appear. Those responses are true and correct to the best of my knowledge and belief.

Robert C. Gamberg

Subscribed and sworn to before  
me this 18 day of October,  
1982.

Juan M. Furr  
Notary Public

My Commission expires: 10-27-85

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

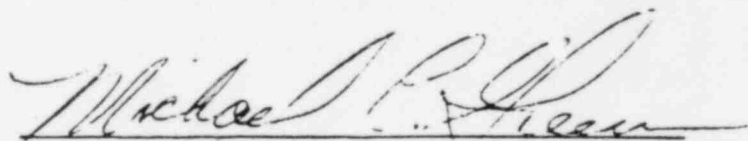
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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DUKE POWER COMPANY, et al. ) Docket Nos. 50-413  
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(Catawba Nuclear Station, )  
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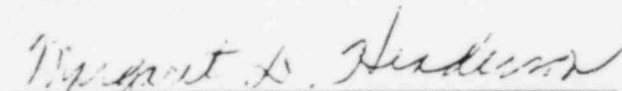
AFFIDAVIT

I, Michael C. Green, being duly sworn, hereby state that I am employed by Duke Power Company as a Supervising Design Engineer, Design Engineering Department.

I have been responsible for furnishing the basic information used in responding to those Interrogatories on Palmetto Alliance Contention 16 by which my initials appear. Those responses are true and correct to the best of my knowledge and belief.

  
\_\_\_\_\_

Subscribed and sworn to before  
me this 1<sup>st</sup> day of October,  
1982.

  
\_\_\_\_\_  
Notary Public

My Commission expires: April 26, 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

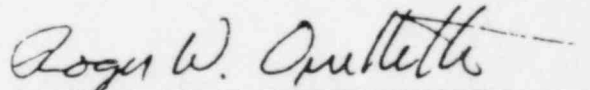
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

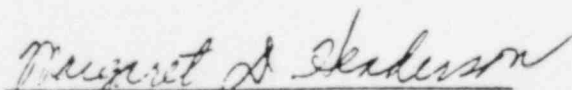
AFFIDAVIT

I, Roger W. Ouellette, being duly sworn, hereby state that I am employed by Duke Power Company as Assistant Engineer-Licensing, Nuclear Production Department.

I have been responsible for furnishing the basic information used in responding to those Interrogatories on Palmetto Alliance Contention 16 by which my initials appear. Those responses are true and correct to the best of my knowledge and belief.

  
\_\_\_\_\_  
Roger W. Ouellette

Subscribed and sworn to before  
me this 18th day of October, 1982

  
\_\_\_\_\_  
Notary Public

My Commission Expires:

April 26, 1983

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
DUKE POWER COMPANY, et al. )  
(Catawba Nuclear Station )  
Units 1 and 2) )

Docket Nos. 50-413  
50-414

AFFIDAVIT

I, Norman T. Simms, being duly sworn, hereby state that I am employed by Duke Power Company as a Design Engineer I, Design Engineering Department.

I have been responsible for furnishing the basic information used in responding to those Interrogatories on Palmetto Alliance Contention 16 by which my initials appear. Those responses are true and correct to the best of my knowledge and belief.

Norman T. Simms

Subscribed and sworn to before  
me this 18 day of October,  
1982.

Juan M. Furr  
Notary Public

My Commission expires: 10-27-85

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) )

AFFIDAVIT

I, M. S. Tuckman, being duly sworn, hereby state that I am employed by Duke Power Company as Superintendent of Technical Services, Nuclear Production Department, Catawba Nuclear Station.

I have been responsible for furnishing the basic information used in responding to those Interrogatories on Palmetto Alliance Contention 16 by which my initials appear. Those responses are true and correct to the best of my knowledge and belief.

M. S. Tuckman  
M. S. Tuckman

Subscribed and sworn to before  
me this 18th day of October, 1982.

Gronne H. Jackson  
Notary Public

My Commission Expires:  
My Commission Expires Oct. 15, 1990