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	)	

PALMETTO ALLIANCE THIRD SET OF INTERROGATORIES
AND REQUESTS TO PRODUCE

Pursuant to 10 CFR Sections 2.720(h)(2)(ii), 2.740b, 2.741 and 2.744, Palmetto Alliance (Intervenor) hereby serves its Third Set of Interrogatories and Requests to Produce upon the Applicants and the NRC Regulatory Staff. These interrogatories involve Palmetto Alliance Contentions 16 and 44.

Each interrogatory shall be answered fully in writing, under oath or affirmation, and include all pertinent information known to the Regulatory Staff and the Applicants including their officers, directors, employees, agents, advisors or counsel. Each request to produce applies to pertinent documents which are in the possession, custody or control of the Staff and the Applicants including their officers, directors, employees, agents, advisors or counsel. In answering each interrogatory and in responding to each request, please recite the interrogatory or request preceding each answer or response. Also, please identify the person providing each answer or response.

These interrogatories and requests shall be continuing in nature. Thus, any time information is obtained which renders any previous response incorrect or indicates that a response was incorrect when made, a supplement

should be made to the previous response to the appropriate interrogatory or request to produce. Supplements should be made to the responses as necessary with respect to identification of each person expected to be called at the hearing as an expert witness, the subject matter of his or her testimony, and the substance of that testimony. Intervenor is particularly interested in the names and areas of expertise of witnesses, if any. Each identification of such witnesses is necessary if Intervenor is to be afforded adequate time to depose them.

The term "documents" shall include any writings, drawings, graphs, charts, photographs, and other data compilations from which information can be obtained. We request that at a date or dates to be agreed upon, you make available for inspection and copying, all documents subject to the requests set forth below.

REQUESTS TO PRODUCE

Pursuant to 10 CFR Sections 2.741 and 2.744, Intervenor requests you to make available for inspection and copying at a time and location to be designated, any and all documents, of whatsoever description, identified in the responses to these interrogatories, below; including, but not limited to:

(1) any written record of any oral communication between or among Applicants, their advisors, consultants, agents, attorneys, and/or any other persons, including but not limited to the NRC Staff, the Intervenors, and their advisors, consultants, agents, attorneys and/or any other persons; and

(2) any documents, correspondence, letter, memorandum, notes, diagrams, reports, charts, photographs, or any other writing or whatsoever description, including but not limited to work papers, prior drafts, and notes of meetings.

If you maintain some documents should not be made available for inspection, you should specify the documents and explain why such are not being made available. This request extends to any such documents described above, in the possession of Applicants, Staff and their advisors, consultants, agents, or attorneys.

INTERROGATORIES

Pursuant to 10 CFR Sections 2.740b, 2.720(h)(2)(ii), Intervenor requests Applicants and Staff by and through its attorney, to answer separately and fully in writing under oath or affirmation, by persons having knowledge of the information requested, the following interrogatories.

A. General Interrogatories

The following interrogatories apply severally to each of the contentions admitted as issues in controversy in this proceeding.

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.
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.

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.

4. Is your position on the contention based upon conversations, consultations, correspondence or any other type of communications with one or more individuals?

   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.

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.
2. Describe in detail the loading conditions of the spent fuel pool. FSAR 9.1.2.1(1)
3. Describe in detail the loading combinations of the spent fuel pool. FSAR 9.1.2.1.(1)
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.
5. Describe in detail the building enclosing the spent fuel pools. Include in your answer a complete description of the ventilation and filtration systems.
6. Describe in detail the cask storage area. FSAR 9.1.2.1(5)
7. How is this area segregated from the spent fuel pool?
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.
9. Explain in detail the procedures used in segregating the cask storage area from the spent fuel pool.
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.

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.

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.

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.

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.

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

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.

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

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.

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 response in detail, identifying all documents, studies, technical reports, testimony and oral communications.

20. What quantity of fuel is to be stored at <u>each</u> pool at the Catawba facility?

21. What are the shielding requirements for the Catawba spent fuel pools?

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.

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

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

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

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

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.

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.

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

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

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

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.

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

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

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.

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.

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.

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.

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.

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?

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

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

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

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.

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

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

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.

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

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

50. Explain in detail how the cooling trains operate.

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

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

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.

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 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.

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

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

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

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?

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.

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, describe in detail, the procedure used.

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

62. How is demineralized water supplied to the pool?

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

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

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.

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"?

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

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

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

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?

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

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

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.

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

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.

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.

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

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

and computations utilized.

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

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?

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.

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?

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

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

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?

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

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.

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

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

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.

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.

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

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

94. If neither a reprocessing facility or an AFR at it 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?

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

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

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

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.

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

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

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

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

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.

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.

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

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.

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

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.

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?

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.

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

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

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.

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

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

the fuel pool?

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

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.

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

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.

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

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.

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

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.

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

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.

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.

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

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.

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.

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

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.

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

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

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

135. Specify the potential causes for explosions in the fuel unloading,

handling and storage process and the consequences expected to result.

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

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

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

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.

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

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

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

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

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

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

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?

147. What is the present status of the Applicant's consideration of dry storage, at

a. Oconee,

b. McGuire,

c. Catawba?

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

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?

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

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?

Contention 44

1. Identify all studies, documents, technical reports, treatises and testimony dealing with the subject of reactor embrittlement.

2. Identify all studies, documents, technical reports, testimony and oral communications as well as all communication with the NRC on the subject of Oconee reactor embrittlement.

3. Explain in detail why you think overcooling transients and embrittlement problems that have occurred at Oconee will not occur at Catawba.

4. Have you conferred with the owners of the H.B. Robinson plant on embrittlement problems?

a. If so, identify and describe in detail all such communications.

b. If not, why have you not done so since Combustion Engineering manufactured the reactor vessel to be used at Catawba 2 and the one in use at the Robinson facility? Explain in detail.

5. Identify all embrittlement problems that have occurred with reactor vessels manufactured by DeRotterdame Drodgdak Mattschappu N.V. Specify all U.S. facilities that used vessels manufactured by this company.

6. Why were Combustion Engineering and De Rotterdame Drodgdak Mattschappu N.V. chosen to supply the reactor vessels for Catawba? Be specific in your response. When were they chosen?

7. Describe in detail all precautions taken that will reduce the likelihood of overcooling and overpressurization transients.

8. What is warm prestressing? Will this process be used on the Catawba reactors?

9. Describe in detail all training and procedures for reactor operators for handling overcooling and overpressurization transients.

10. At what temperature will the water in the ECCS be maintained? Has any consideration been given to increasing this temperature? Explain your response in detail.

11. Describe in detail all action taken by the Applicant in response to early reactor embrittlement problems at other facilities. Include any and all changes in design, emergency and routine operating procedures, as well as any other action taken at Catawba to prevent such problems.

12. Why were longitudinal welds used in Catawba Unit 2? Are longitudinal welds preferable to circumferential welds in maintaining reactor vessel integrity?

13. Specify the chemical compositions of all weld material used in each reactor vessel.

14. Describe in detail how the welds in Unit 2 are located away from peak neutron exposure. Specify where and why it was not possible to do so.

15. Provide the results of all ultrasonic, penetrant and magnetic particle examinations.

16. Why does Westinghouse not apply any of the recommendations of Regulatory Guide 1.50 to Class 2 and 3 components? Explain in detail.

17. Describe in detail where the reactor vessel materials fail to meet the fracture toughness requirements of 10 CFR 50, App. G. Why do the materials fail to meet these requirements?

18. Specify why the fracture toughness testing performed on vessel material from Units 1 and 2 did not include all of the tests necessary to determine RT_{NDT} in the manner prescribed in NB-2300 of ASME III, Summer 1972 Addenda. Describe in detail the tests not performed.

19. Explain in detail how the necessary properties were estimated.

20. Explain in detail the "transition temperature approach." FSAR 5.3.1.6

21. Explain in detail the "fracture mechanics approach." FSAR 5.3.1.6

22. Describe in detail and provide copies of all studies, tests, and experiments on thermal shock and reactor embrittlement in which the Applicant and/or Westinghouse participated in the past and/or are now participating.

23. If completed, provide the results of the fracture toughness program

involving irradiation and testing of weld metal used in fabrication of operating pressure vessels of pre-1972 construction mentioned in Applicant's FSAR page 5.3-16.

24. Has any consideration been given by the Applicant to placing dummy rods instead of fuel in the outer core? If so, describe in detail what consideration has been given and the decisions that resulted.

25. Do the Catawba reactors comply with the same ASME specifications as the Oconee reactors? If not, what are the specific differences? What ferritic composition is used at Catawba? At Oconee?

26. Provide all Charpy test data on coupons tested for Oconee reactor materials, plate, weld, and bolting, both prior and subsequent to operation, identifying sample position and time of test. Specifically, copies of test results 10 CFR 50, App. H IV are requested.

27. What RT_{NDT} values were anticipated over the life of the Oconee reactors, by year or whatever increment was used? What are the corresponding estimates for Catawba?

28. Provide all utlrasonic test data for Oconee reactors, identifying positions of the scans, the time of the test, and the interpretation of the data.

29. What provisions have been made for annealing Oconee reactors, and Catawba reactors, in terms of facility design? 10 CFR 50, App. G IV C

30. Provide a copy of the annealing procedures for both Oconee reactors and Catawba reactors.

31. How much down time will be required for the annealing operation?

32. What incremental radiation dose is estimated for the workers involved in the annealing operation?

33. For each Oconee reactor, what is the present neutron fluence (E 1.0MeV) at beltline? What are the calculated fluences for Catawba reactor vessels at 10, 20, 30 and 40 years?

34. For each Oconee reactor, provide all surveillance data obtained for compliance with 10 CFR 50, App. H.

35. Was it initially assumed that the Oconee reactors would meet the conditions of 10 CFR 50, App. H II.C.3.a? Have the Oconee reactors met these conditions?

36. What is assumed for the Catawba reactors in regard to meeting the conditions of 10 CFR 50, App. H II.C.3.a?

September 27, 1982

Robert Guild
314 Pall Mall
Columbia, South Carolina
29201

Counsel for Palmetto Alliance

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
DUKE POWER COMPANY, et al.	)	Docket No. 50-413
	)	50-414
(Catawba Nuclear Station, Units 1 and 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Palmetto Alliance Motion to Require Staff Answers to Interrogatories" and "Palmetto Alliance Third Set of Interrogatories and Requests to Produce"

in the above captioned matters, have been served upon the following by deposit in the United States mail this 27 th day of Sept., 1982.

James L. Kelley, Chairman
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. A. Dixon Callihan
Union Carbide Corporation
P.O. Box Y
Oak Ridge, Tennessee 37830

Dr. Richard R. Foster
P.O. Box 4263
Sunriver, Oregon 97701

Chairman
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

George E. Johnson, Esq.
Office of the Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

William L. Porter, Esq.
Albert V. Carr, Jr., Esq.
Ellen T. Ruff, Esq.
Duke Power Company
P.O. Box 33189
Charlotte, North Carolina 28242

Richard P. Wilson, Esq.
Assistant Attorney General
State of South Carolina
P.O. Box 11549
Columbia, South Carolina 29211

Chairman
Atomic Safety and Licensing
Appeal Board
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Henry A. Presler
Charlotte-Mecklenburg
Environmental Coalition
943 Henley Place
Charlotte, North Carolina 28207

J. Michael McGarry, III, Esq.
Debevoise & Liberman
1200 Seventeenth St., N.W.
Washington, DC 20036

Jesse L. Riley
854 Henley Place
Charlotte, North Carolina 28207

Scott Stucky
Docketing and Service Station
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Robert Guild (DLB)
Robert Guild
Attorney for Palmetto Alliance