

UNITED STATES OF AMERICA *84 MAR 22 110:41
NUCLEAR REGULATORY COMMISSIONBEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
DUKE POWER COMPANY, <u>et al.</u>)	Docket Nos. 50-413
)	50-414
(Catawba Nuclear Station,)	
Units 1 and 2))	

PALMETTO ALLIANCE AND CAROLINA ENVIRONMENTAL STUDY
GROUP'S INTERROGATORIES AND REQUESTS TO PRODUCE
DOCUMENTS ON DIESEL GENERATOR CONTENTIONS TO
APPLICANTS AND NRC STAFF

Pursuant to 10 C.F.R. §§ 2.720(h) (2) (ii), 2.740b, 2.741 and 2.744 and in accordance with the Licensing Board's Orders dated February 23 and 27 and March 14, 1984, and the expedited hearing schedule established by the Board (Tr. 12,545-46), Palmetto Alliance and Carolina Environmental Study Group (CESG) hereby serve Interrogatories and Requests to Produce on the Diesel Generator Contentions upon Applicants and NRC Staff. These interrogatories involve the joint Intervenor contention on the adequacy of design of diesel generator crankshafts and the Board Contention on recently discovered problems in the 1-A diesel generator at Catawba.

Each interrogatory shall be answered in writing, under oath or affirmation, and include all pertinent information known to Applicants and NRC Staff, their officers, directors, as well as any employees, agents, advisors or counsel. Each request to produce applies to pertinent documents which are in the possession, custody or control of Applicants and NRC Staff, their officers,

directors, employees, agents, advisors or counsel. In answering each interrogatory and 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 Applicants or NRC Staff obtains information which renders any previous response incorrect or indicates that a response was incorrect when made, it should supplement its previous response to the appropriate interrogatory or request to produce. You should also supplement your 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. Intervenors are particularly interested in the names and areas of expertise of your witnesses, if any. Each identification of such witnesses is necessary if Intervenors are to be afforded adequate time to depose them.

The term "document" 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 FOR DOCUMENTS

Pursuant to 10 C.F.R. §§ 2.741, 2.744, 2.790 and Part 9 Intervenors request Applicants and NRC Staff by and through their

attorneys 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 the interrogatories below, including but not limited to:

- (1) any written record of any oral communication between or among Applicants and the NRC Staff, 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 of 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 document, described above, in the possession of Applicants and NRC Staff, your advisors, consultants, agents or attorneys.

FREEDOM OF INFORMATION ACT REQUEST

It is requested that any and all documents identified herein which are in the possession of the NRC Staff be made available for inspection and be copied pursuant to the Freedom of Information Act, 5 U.S.C. 552, and the NRC's implementing regulations, 10 C.F.R. Part 9; and that any request for documents made of the NRC Staff be considered as a request for records under the Freedom of Information Act in order that the Intervenor's interest in obtaining

the fullest production of pertinent information in the most timely and least costly manner be best served. Intervenor request that a copy of the description of records identified in the process of responding to the attached interrogatories be forwarded to the Director, Office of Administration, at the earliest opportunity for response under the Act. Intervenor are not-for-profit public interest organizations. We are informed and believe that we are entitled to a waiver or reduction of fees pursuant to 10 C.F.R. § 9.14a.

INTERROGATORIES

Palmetto Alliance and CESG request Applicants and the NRC Staff by and through their attorneys, to answer separately and fully in writing under oath or affirmation, by persons having knowledge of the information requested, the following general and specific interrogatories.

A. General Interrogatories

The following interrogatories apply to the diesel generator 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, claim or defense regarding the contention based on one or more calculations? If so:
 - a. Describe each calculation and identify any document 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 contention.
4. Is your position, claim or defense regarding the contention based on one or more experiments or tests? If so:
 - a. Describe each experiment or test and identify any document setting forth such experiment or test.
 - b. Who performed each experiment or test?
 - c. When was such experiment or test performed?
 - d. Describe each parameter or variable measured in such experiment or test.

- e. What are the results of each experiment or test?
 - f. Explain in detail how each experiment or test provides a basis for your position, claim or defense regarding the contention.
5. Is your position, claim or defense regarding the contention based upon conversations, consultations, correspondence or any other type of communication 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 such 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 issues.
 - e. Identify each letter, memorandum, tape, note or other record related to each conversation, consultation, correspondence, or other communication with such individual.
6. Is your position, claim or defense regarding the contention based upon one or more NRC Staff documents? If so, please identify such documents and make them available for inspection and copying.

B. Specific Interrogatories

1. Identify what you believe to be the relevant design standards which apply to diesel generator crankshaft design. Identify any and all documents upon which you base your response.
2. What data, experiments, calculations or operational history do you rely upon to support your position, claim, or defense that the Catawba crankshaft design is adequate? State with particularity those data, experiments, calculations or operational history which you believe to be directly applicable to the Catawba Nuclear Station diesel generator crankshafts.
3. State the differences between the data, experiments or operational history identified in the previous answer to that which characterizes the Catawba diesel generator crankshafts. State further the assumptions used to apply this data to the Catawba diesel generator crankshaft.
4. What are the Diesel Engine Manufacturers Association (DEMA) standards? Are the DEMA standards applicable to diesel generator design for use in nuclear power plant application?
 - a. If so, are they adequate for such use? Identify and specify the basis for your response.
 - b. If not, explain in detail the basis for your conclusions; and identify the standards you believe

should be applicable and the basis for their application.

5. How do the counter weights on the Catawba V-16 crankshaft compare to those on the Shoreham crankshaft?
6. What is the fillet radius on the Catawba crankshaft?
7. Has the Shoreham crankshaft been shot-peened in the fillet area?
8. Please provide the specific documentary basis for your answer to the three proceeding questions.
9. Have all DSRV-16 crankshafts in nuclear applications been inspected by one common qualified individual?
By an inspection from Failure Analysis Associates?
If so, please identify any documents reflecting these inspections.
10. Are the DSRV-16 crankshafts nominally identical? If not, detail the differences in these crankshafts.
11. What assurance is there that the conditions of the Catawba DSRV-16 crankshafts are known as to:
 - a. metallurgy;
 - b. fillet radius;
 - c. shot-peening of fillet radius;
 - d. web design -- flat-sided or circular-shaped;
 - e. use of counter weights?
12. If the foregoing had been determined and are known, how do they relate to best practice and DEMA standards for each such condition?

13. On the basis of the nine NRC inspections at Trans-America Delaval, Inc. (TDI) by the NRC, see, 1/26/84, Meeting on TDI diesel generators, (Tr. 15) , what means have been identified or will be employed to effectively correct TDI's performance, i.e., to "shape them up" and "make them fly straight?" How long will it take? Please explain in detail basis for your answers.
14. How long will it take for TDI to properly manufacture diesel generators or components? How will this point be identified?
15. Describe in detail, and produce for inspection and copying, all documentation required by Applicants from TDI regarding the Catawba diesel generators, including but not limited to those summarized in attachment 12-1 to Applicants February 22, 1984 response to the NRC Staff.
16. Identify in detail, and make available for inspection and copying any and all records of Applicants' surveillance performed at TDI with respect to the Catawba diesel generators.
17. Identify in detail all records reflecting shop testing, qualification testing, or generic testing with respect to the Catawba diesel generators, including but not limited to the testing identified in attachment 6-2 to the above-referenced submittal. Make available such records for inspection and copying.

18. Identify in detail, and make available for inspection and copying any records of inspections of the Catawba diesel generators at TDI as well as after receipt at Catawba.
19. Identify any components of the Catawba diesel generators not manufactured by TDI and describe in detail the surveillance and inspection records applicable to each component. Please make available such records for inspection and copying.
20. With respect to the Catawba diesel generators were any inspection, audit, surveillance or testing hold points or check points missed? Please specify.
21. Why did you operate the engines lacking a full QA record? What failures or deficiencies have Applicants or the NRC Staff identified in the Catawba engines in procurement, vendor surveillance, or receiving inspection programs? For other DSRV-16 engines?
22. A file was found in the generator associated with one TDI diesel engine during early operation. Could it have been discovered before that point? If so, in what inspection? By whom? Why wasn't it?
23. A second file was found in another generator. Was this found during a QA inspection? If not, how was it found? Why?
24. How did files 1 and 2 come to be in the generators? What has been done to determine the cause of this occurrence? Was this a common cause? What corrective steps,

if any, have been taken? Please specify. In how many other generators have files been found?

25. Have any other extraneous items been found in the TDI diesel generators or associated equipment? Please specify circumstances, articles, and consequences.

26. The following statement was made in the Owners Group 1/26/84, presentation to the NRC:

. . . we had decided that as part of the design review quality revalidation effort, the quality engineers and indeed the specialists are evaluating the need to perform either inspections or evaluations of components on the basis of their function and their real requirements as opposed to just doing quality assurance program review.

(Tr. 27). Described in detail, such inspections and evaluations and identify the components and their "function" and "real requirements" as applied to the Catawba diesel generators.

27. Identify all manufacturers of emergency diesel generators for use in nuclear power plants. Identify plant and type, and principal specifications including model number, cylinders, configuration, and number at each plant.

28. With respect to these diesels identify all failures, deficiencies, incidents, licensee event reports (LERs) or other significant operational occurrences. For example, the bearing and shaft failure at Arkansas No. 1.

29. Identify the nuclear plant where high winds caused damage to the transformer or switch yard. Was offsite power lost? Was the facility operating? Were emergency diesel

generators used for a safe shutdown?

30. What instances have emergency diesel generators been required to function in nuclear power plant applications? Please identify in detail including facility name, date and description of circumstances. Why is the measured
- 30A. crankshaft torque ten percent higher than predicted according to Failure Analysis Associates, 1/26/84 (Tr. 38)? What effect does this prediction have on knowledge of the performance of the Catawba crankshaft?
31. What replacement options for diesel generators or components are available or are under consideration by the NRC, the Owners Group or any members thereof, or by Applicants? Please describe each including time and availability considerations.
32. Is Long Island Lighting Company at Shoreham planning to replace or supplement the TDI generators with others supplied by a manufacturer such as Colt Industries? What is the NRC Staff position on this action?
33. Provide a listing of each 10 C.F.R. Part 21 report with respect to emergency diesel generators. With respect
- 33A. to the design review task descriptions, 1/26/84 meeting, (Tr. 55), how many tasks were:
- a. eliminated;
 - b. reduced;
 - c. left unchanged;
 - d. augmented

Identify the reviewers who participated in each change.

34. Which task will apply to all components? Or which tasks will a population be sampled for qualification by a sampled surrogate? Identify the number of surrogates and the number of components in the total population in each case. What assurance is there that the populations are sufficiently homogeneous for randomly chosen surrogates to be representative? See, for example, 1/26/84 at (Tr. 77).
35. List results/recommendations put forth by Owners Group task force. How many would be changed on review? What were the changes? By which reviewer were they suggested? How many reviews left the results/recommendations unchanged? How many recommendations were made less stringent? More stringent? Who made what changes? Identify and describe in detail each, Describe
- 35A. in detail the Catawba maintenance and testing program for emergency diesel generators.
36. For a universe of 100 engines will a single acceptable inspection or test qualify the other 99? Explain fully the basis for your answer.
37. If the initial sample proves unsatisfactory and the second sample is satisfactory what would the further sampling be? How will it be determined as to size and relation to accepted versus rejected samples?

38. Three AE pistons are to be inspected at Shoreham after run. With respect to later model engines what test/inspection results would call for a reduced level of inspection? See, 1/26/84 Meeting (Tr. 84).
39. Do you assert that authorization for fuel load and operation at any power levels is appropriate prior to full qualification of the acceptability of the emergency diesel generators at the Catawba Nuclear Station? If so, describe in detail the factual and technical basis for your answer with respect to the protection of the public health and safety at each power level for which such authorization is believed appropriate and given the specific progress achieved in qualification of the emergency diesel generators at such time.)
- 39A. Prior to ordering the TDI diesels did Applicants perform any investigation of customer satisfaction or operating history for TDI supplied engines? If so, explain in detail. If not, explain why and identify any other information relied upon with respect to the acceptability of TDI engines.
40. Were Applicants aware of the operating experience of TDI engines in marine applications? Describe in detail.
41. What information did Applicants have as to the trustworthiness of TDI's QA program, particularly with respect to its quality control inspection program?
42. What information did Applicants have or acquire concerning

the qualifications of TDI QA personnel?

43. What information did Applicants have or acquire regarding the rated and actual horsepower per cylinder for TDI engines in marine and nuclear applications? Did Applicants have or acquire any information regarding over-rating or under-powering of TDI engines? What is the horsepower rating per cylinder of the Catawba diesels? What is the horsepower per cylinder of the comparable model diesel in use in marine applications?
44. With respect to the "design improvements" listed in attachment 4-1 to Applicants 2/22/84 submitted to the NRC, why were the failures there reflected not understood as evidence of product immaturity? What competing bids for emergency diesel generators were solicited and/or recieved by Applicants in addition to the submission by TDI? Identify and make available for inspection and copying documents reflecting such alternate equipment.
- 44A. What competing bids for emergency diesel generators were solicited and/or recieved by Applicants in addition to the submission by TDI? Identify and make available for inspection and copying documents reflecting such alternate equipment.
45. With respect to the term "limitless trouble-free service" as employed in item 10 of attachment 4-1 to Applicants' 2/23/84 submittal, provide a detailed definition including precise measurement of service time represented by the term.
- 45A. On which diesel generator was the seven day no load Idle Endurance Test performed as referenced in response No. 6 of the above submittal? What is the significance of this test?

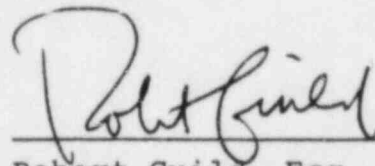
46. What is the basis for asserting that 300 start tests of the Grand Gulf diesel generator adequately qualifies the Catawba engines? Describe in detail and identify all documents reflecting this basis.
47. What is the basis for use of testing and inspection of the Catawba 1-A diesel generator to qualify the other three generators at Catawba? Explain in detail the basis for this answer and identify all documents reflecting such basis.
48. What relevant statistical information leads to justifying this practice?
- 48A. What load level was employed in the "24 hour loaded run" included in the testing of the Unit 1 diesel generators?
49. With respect to the testing of the Catawba Unit 1 diesel generators described in response to item 7 in Applicants' 2/22/84 submittal explain in detail the results of each of the start-up and pre-operational functional testing. Identify documents reflecting circumstances and conditions of each test as well as the test results. If any test was omitted or modified explain fully the basis for such action.
- 49A. Identify in detail any and all documents reflecting the Catawba diesel generators operating history and any problems, deficiencies or unusual or abnormal operations observed. Include each item and event reflected in response No. 8 and Applicants' 2/22/84 submittal. Please update your

response to include any subsequent developments.

50. Identify fully the documentary basis for responses No. 11 and 12 in Applicants' 2/22/84 submittal to the NRC Staff. Please make these documents available for inspection and copying.
51. With respect to the response to item 13 of Applicants' 2/22/84 submittal to the NRC Staff regarding loss of voltage incidents describe in detail each such incident at Applicants' Oconee and McGuire facilities setting forth the information described in that response with respect to Catawaba.
52. Identify by name, title, address and telephone number each and every person responsible for performing the following functions with respect to the Catawba emergency diesel generators:
 - a. specification design;
 - b. bid solicitation and analysis;
 - c. approval of TDI as supplier;
 - d. QA audit and surveillance of TDI;
 - e. receiving inspection;
 - f. diesel generator testing;
 - g. component inspection;
 - h. post Shoreham failure TDI liason;
 - i. Owners Group liason and representation;
 - j. NRC liason;
 - k. design qualification;

- l. extended operation test of diesel generator 1-A
- m. analysis of options and procurement of replacement components in equipment.

Describe the work experience, training and qualifications of each of these individuals.



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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
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DUKE POWER COMPANY, et al) Docket Nos. 50-413
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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of PALMETTO CESC
INTERROGATORIES AND REQUESTS TO PRODUCE DOCUMENTS ON DIESEL GENERATOR
CONTENTIONS in the above-captioned matter have been served
upon the following, by deposit in the United States mail,
with first class postage prepaid, or as indicated by "**",
with Express Mail postage prepaid,
this 18th day of March, 1984.

1984 03

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Certificate of Service

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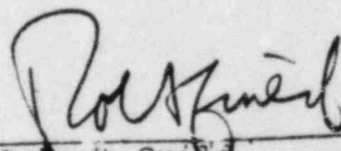
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