

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
GEORGIA POWER CO., et al.)
)
(Vogtle Electric Generating Plant,)
Units 1 and 2))

Docket Nos. 50-424 and

DOCKETED
USNRC

'84 DEC 11 P2:28

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CPG/GANE'S RESPONSE TO APPLICANTS'
FIRST SET OF INTERROGATORIES AND
REQUEST FOR PRODUCTION OF DOCUMENTS

On November 5th, 1984, Applicants served on Intervenor's Campaign for a Prosperous Georgia and Georgians Against Nuclear Energy their First Set of Interrogatories and Request for Production of Documents. Intervenor's provide herein their responses to these discovery requests.

A. ANSWERS AND OBJECTIONS TO
SPECIFIC INTERROGATORIES AND
REQUESTS TO PRODUCE

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Contention 7 (Groundwater)

7-1. In Contention 7, Intervenor state that "Applicant has not addressed the value of the groundwater..." Explain the basis for this statement.

Applicants do not address the value of the groundwater at and surrounding VEGP in their application. The Applicants acknowledge this omission by stating, "there is no need to assess the 'value' of the groundwater." ("Applicants' Response to GANE and CPG Supplements to Petitions for Leave to Intervene," p. 43) Intervenor hope that Applicants' use of quotation marks around the word "value" is not an indication that the Applicants believe there is no such value. In addition, the Applicant uses insufficient and old reports in its analyses. Cook's 1943 study should be used only as a preliminary information source; other, more up-to-date sources should have been consulted. The 1943 study describes stratigraphic relationships based on surface outcrop data only. When surface data are extrapolated into the subsurface, spurious interpretations of stratigraphic sequences and hence aquifer-aquiclude relationships may result. Water quality analyses are thirteen years old and appear to represent the results of a one-time-only analysis. This may not provide enough information on the present water systems. Geophysical well log data, obtainable from the State of Georgia Geological Survey and the U.S.G.S., have not been used. These types of logs are extremely helpful in defining subsurface stratigraphic relationships, the water bearing nature of the units and the presence of radioactive materials. The written and tabular information is insufficiently referenced; for example, Table 2.4.12-7 (FSAR) does not identify its source (U.S.G.S. or water-well drillers logs) or whether it was compared with subsurface geologic maps. In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

7-2. Identify and explain any specific inadequacies that you contend exist in

Applicants' assessment of different accidental spillage in the CP-ER at ss 2.5.4 and 5.4.3.2, and OL-ER at s 7A.4.

The Applicant simply does not address groundwater impacts in its current assessment of accidental spillage. For example, there is no mention whatsoever of groundwater in the OL-ER at s 7A.4. In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

7-3. Intervenor's Contention 7 also states that "Applicant fails to provide adequate assurance that the groundwater will not be contaminated..." Explain the basis for this statement.

Applicants fail to study the causes of the contamination of the groundwater at the Savannah River Plant (SRP) across the river, a site with a very similar hydrogeology to the Vogtle site. See also 7-1 and 7-2 above.

7.4 Intervenor states that "groundwater underlying the Vogtle plant is a valuable resource whose protection...cannot be assured by [Applicants]." Explain the basis for this statement.

The experience at the Savannah River Plant demonstrates the inability to prevent contamination of the groundwater despite repeated assurances that it was being protected. Nothing put forth by the Applicant addresses this adequately and unless and until the Applicant presents detailed analyses of the causes of the SRP contamination and the specific measures to prevent such contamination at Plant Vogtle, such protection cannot be assured. SRP has in the past predicted that the Tuscaloosa Aquifer could not be penetrated by contaminants, but it has been. In fact, groundwater at SRP is so grossly contaminated that it is now considered by the Environmental Protection Agency to be a source of pollution of surface streams.

(See citations herein.) Vague assurances that contamination will not occur are not sufficient when similar assurances have been issued for SRP; specific analysis of the SRP problems coupled with specific preventive measures are the minimal requirement to prevent groundwater contamination by Plant Vogtle. In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

7.5 Identify and explain any specific inadequacies that you contend exist in Applicants' liquid waste management system as described in the FSAR at s 11.2. Intervenor is unable to respond to this interrogatory at this early stage of the discovery process due to the inadequacies of Applicants' Application. In its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

7.6 Identify and explain any specific inadequacies that you contend exist in Applicants' assessment of possible accidental releases in FSAR at s 15.7 and OL-ER at ss 7.1, 7A.

The Applicants do not address the contamination of groundwater at the Savannah River Plant and its applicability to the Vogtle site, as outlined above.

7.7 Identify and describe in detail the sequence of hydrologic units beneath the Vogtle site and the geologic formations that comprise or separate these units. Intervenor provides this information in the basis of its contention as filed with the Licensing Board ("Supplement to Petition for Leave to Intervene and Request for Hearing," Campaign for a Prosperous Georgia, April 11, 1984, pp. 13-14). Additional information can be found in the citations provided herein.

7-8 Intervenor contends that the water table aquifer below VEGP is a source of

drinking water and agricultural supply. Identify the precise location of all wells that draw from the water table aquifer below VEGP and that are used for these purposes.

Intervenors object to Interrogatory 7-8 on the grounds that it is unduly burdensome. Identification of all wells is the responsibility of the Applicants, not the Intervenors.

7-9 Intervenors also contend that the water table aquifer below VEGP is used by some commercial establishments. Identify all such commercial establishments, describe their use of the water table aquifer beneath VEGP, and identify the precise location of the wells used by these establishments to draw from the water table aquifer.

Intervenors object to Interrogatory 7-8 on the grounds that it is unduly burdensome. Identification of all wells is the responsibility of the Applicants, not the Intervenors.

7-10. Taking into account the direction of groundwater flow and the effect of intercepting systems, describe the manner in which you contend that a spill at VEGP would reach any of the wells identified in your response to Interrogatory Nos. 7.8 and 7.9.

The Savannah River Plant L-Reactor Final Environmental Impact Statement, Report # DOE/EIS-0108 (3 volumes) (1984), as well as the Draft EIS, documents contamination of wells with contaminants from the cooling pond. This precedent could also occur at Plant Vogtle, but the Applicant has not addressed this potentiality.

7-11. Do Intervenors disagree with the assertion that the water table aquifer at VEGP is on an interfluvial high isolated from surrounding aquifers, as described in the CP-ER at ss 2.5.4, OL-ER at 2.1.3.8.1.2, and FSAR at s 2.1.12.1.2.3.? If so, explain the basis for disagreeing with this assertion.

Yes. Applicants have relied on old and inadequate data in their assertion.

Groundwater is interconnected in many ways and there is no such thing as a truly

"isolated" water table aquifer, as demonstrated at SRP and elsewhere. In the FSAR, 2.4.12-10, paragraph 3, Applicants state that the Huber Fm (Paleocene) does not constitute an effective aquiclude and the Tertiary and Cretaceous aquifers are hydraulically interconnected; this effectively means that if contaminated waters were released at the surface, groundwater contamination would result.

7-12. Do Intervenor contend that radioactive contaminants in the water table aquifer below the VEGP site could reach and migrate across Beaverdam Creek? If so, explain the precise mechanism for such migration.

Yes. It is well known by informed professionals and described throughout the literature that flow of contaminants can go against the hydrolic flow.

7-13. How long do you contend it would take radioactive contaminants released to the water table aquifer at the VEGP site to reach and migrate across Beaverdam Creek? Explain how the response was calculated or estimated.

Intervenor have not yet prepared this calculation but will provide it to the Applicants upon its completion. The relevance of this interrogatory is questionable absent specific measures described by the Applicants to stop said migration following a release.

7-14. How far south of the VEGP site do you contend that the marl changes to a limestone formation?

Intervenor have not yet completed this determination but will provide it to the Applicants upon completion.

7-15. Identify any other locations where you contend the marl changes to a limestone formation. Include in your response the direction and distance from the plant to such formation.

Intervenor have not yet completed this determination but will provide it to Applicants upon completion.

7-16. Do Intervenor contend that radioactive contaminants reaching the water table aquifer below the VEGP site could migrate to the point south of the site where

Intervenors assert the marl changes to a limestone formation? If so, explain the precise mechanism for such migration.

Yes. The contamination could migrate as explained in the above responses with or against the hydrolic flow.

7-17. If Intervenors contend that radioactive contaminants reaching the water table aquifer below VEGP could migrate to the point south of the site where the marl purportedly changes to a limestone formation, state how long such migration would take. Explain how the response was calculated or estimated.

Intervenors have not yet prepared this calculation but will provide it to the Applicants upon completion. The relevance of this interrogatory is questionable absent specific measures described by the Applicants to stop the migration following a release.

7-18. Do Intervenors disagree with the statement in the CP-ER at ss 2.5.4 that radioactive contaminants released to the water table aquifer would eventually [sic] find their way to Mathes (also known as Mallard) Pond? If so, explain precisely the basis for your disagreement.

Yes. Contaminants could eventually find their way to the Mallard Pond but this does not necessarily mean that they would. They could also flow to the groundwater, including the Tuscaloosa Aquifer, as occurred at the Savannah River Plant. At any rate, the Applicants also do not explain how they would intercept the contaminants if they reached Mallard Pond. In addition, in its "Response to Intervenors' First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenors will respond more fully to this interrogatory after reviewing said documentation.

7-19. If Intervenors disagree with the statement that radioactive contaminants released to the water table aquifer below VEGP would find their way to Mathes Pond, state in what direction such contaminants would travel and how long they would take

to reach the plant site boundary. Explain the basis for your response.

At the Savannah River Plant's S & H Seepage Basins, outcropping has occurred in streams below the seepage basins, groundwater has been contaminated and possibly the aquifer below has been contaminated. Please see Intervenor's responses to the above questions.

7-20. Do Intervenor's disagree with the 350 year estimate in the CP-ER at s 5.4.3.2 and in the FSAR at s 2.4.13.1 of the time it would take a spill at Plant Vogtle to reach Mathes (also known as Mallard) Pond? If so, state the basis for such disagreement.

Yes. The contamination from S & H Seepage Basins at the Savannah River Plant has reached streams below the seepage basin, has contaminated the groundwater and has possibly contaminated the aquifer although the plant has been operating only about three decades. SRP officials estimated that groundwater velocity would result in contamination taking one hundred to two hundred years to travel 1,500 feet; it actually took twenty-five years.

7-21. What is Intervenor's estimate of the time it would take a spill to reach Mathes Pond? Explain your calculation.

The contamination from S & H Seepage Basins at the Savannah River Plant has reached streams below the seepage basin, has contaminated the groundwater and has possibly contaminated the aquifer although the plant has been operating only about three decades. SRP estimated that groundwater velocity would mean contamination would take one hundred to two hundred years to travel 1,500 feet and it actually took twenty-five years. Comparable geology at Plant Vogtle suggests that comparable data will be applicable to that facility.

7-22. Do Intervenor's disagree with the assertion that the marl beneath the water table aquifer at VEGP forms an effective aquiclude? If so, explain the basis for disagreeing with this assertion.

Yes. Marl is not impermeable and where one point might be relatively resistant to penetration, another point within several feet might not be.

7-23. Do Intervenor's disagree with the assertion in Applicants' Response to GANE and CPG Supplements to Petitions for Leave to Intervene (May 7, 1984) at 44 n.29 that the 50 foot pressure differential between the water table aquifer and tertiary aquifer (upper confined or Lisbon Sands aquifer, hereinafter referred to as tertiary) or cretaceous aquifer (lower confined or Tuscaloosa aquifer, hereinafter referred to as cretaceous) demonstrates the effectiveness of the marl as an aquiclude? If you disagree, explain the basis for disagreeing with this assertion.

Yes. There is no proof that this pressure differential is consistent or that it will prevent osmosis. Within a close distance, the pressure differential can reverse. See, for example, the Savannah River Plant L-Reactor EIS.

7-24. Describe the precise mechanism(s) and pathways by which you contend that radioactive releases from VEGP could reach the cretaceous aquifer or the tertiary aquifer and include in the description an estimate of the time it would take. All the documents cited herein concerning the Savannah River Plant demonstrate that contamination has reached the Tuscaloosa Aquifer. Three monitoring wells and three production drinking wells, all from the Tuscaloosa Aquifer, all proved to be contaminated.

7-25. Explain in detail the basis for Intervenor's assertion that the marl below the water table aquifer at VEGP has fractures or permeable sections. Identify all documents that refer to or discuss such fractures or permeable sections.

Although the Department of Energy and its predecessors maintained, as do the Applicants, that the marl underlying the plant site is impermeable, there are in fact permeable sections and fragments. In fact, there are places where the clay does not even exist. See, for example, the L-Reactor EIS.

7-26. Identify the location of any fractures or permeable sections of the marl. Intervenor's have not yet completed this determination but the documents cited herein

relating to the Savannah River Plant describe numerous routes for penetration to the aquifer beneath that facility.

7-27. Do Intervenor's contend that fractures or permeable sections of the marl provide a path for migration of contaminants in the water table aquifer to the cretaceous or tertiary aquifers? If so, explain in detail the basis for this contention and identify all documents that support it.

Yes. All cited reports at the Savannah River Plant demonstrate the migration of contaminants into the groundwater and the aquifer.

7-28. With respect to groundwater, identify each section of 10 C.F.R. Part 51, as currently amended and renumbered, that Intervenor's contend Applicants do not satisfy.

10 C.F.R. 51.20 (a), (b) and (c) and 51.21.

7-29. With reference to specific regulatory language of each section identified in response to Interrogatory No. 7-28, explain why Intervenor's contend that Applicants are not in compliance with that section.

Particularly in view of information on the Savannah River Plant which has come to light since the issuance of the construction permit, Applicants fail to meet any of the requirements of these sections due to the failure to adequately address the value and potential damages to the groundwater, as described in Intervenor's contention and amendments thereto, the prehearing conference, the reports cited herein and the responses to the questions regarding this contention.

7-30. Provide any information that Intervenor's have concerning the location of wells in the vicinity of VEG'.

This information is provided in the documents relating to the Savannah River Plant cited herein.

7-31. Identify and describe in detail the sequence of hydrologic units beneath the Savannah River Plant and the geologic formations that comprise or separate those

units.

This information is provided in the documents cited herein.

7-32. Explain, with reference to the specific regulatory language, why Applicants are not in compliance with 10 C.F.R. s 50.34(a)(1) (1984).

Due in particular to information on the Savannah River Plant which has come to light since issuance of the construction permit and Applicants' failure to assess that information, Applicants have not adequately assessed the safety of the site in terms of groundwater, as required by this section.

7-33. Explain, with reference to the specific regulatory language, why Applicants are not in compliance with 10 C.F.R. s 100.10(c)(3) (1984).

"Special precautions should be planned if a reactor is to be located at a site where a significant quantity of radioactive effluent might accidentally flow into nearby streams or rivers or might find ready access to underground water tables." The Applicants failed to consider adequately this potential at the construction permit stage, in part due to the lack of information available, information which has since come to light (see the data regarding the Savannah River Plant in the above responses and in the citations). Regretably, Applicants still fail to consider the implications of the new data concerning this problem, in direct violation of the explicit regulatory requirement.

7-34. Identify each person you expect to call as an expert witness with respect to Contention 7. For each such person, state the subject matter on which he is expected to testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also describe the educational and professional qualifications of each such person, and identify any previous proceeding in which that person has testified.

William F. Lawless will testify on the groundwater contamination at the Savannah River Plant site and its relevance to the Vogtle site. His specific testimony has not been developed beyond the information provided the Applicants to date (including

the responses herein). Lawless has testified in various proceedings regarding the licensing of the L-Reactor at the Savannah River Plant. He formerly directed waste operations at the Savannah River Plant. He is at present a professor at Paine College.

Intervenors may engage one or more other witnesses to testify in regard to this subject matter. Intervenors will supplement this response to provide the information requested when their witness has been identified.

Contention 10.1 (Integrated Dose v. Dose Rate)

10.1-1. Identify the specific polymers that have been shown in NUREG/CR-2157 to be susceptible to differing dose-rate effects (i.e. greater degradation at low dose rates than at a high dose rate during environmental qualification testing), and for each, identify all documents discussing or referring to such susceptibility.

RESPONSE: Intervenor's are unable to respond fully to this interrogatory at this early stage of the discovery process due to the inadequacies of Applicants' application. In its "Response to Intervenor's First Set of Interrogatories and Requests for Production of Documents" Applicants offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor's will respond more fully to this interrogatory after reviewing said documentation. At this time Intervenor's can identify PVC and polyethylene polymers as susceptible to dose rate effects. This phenomenon is discussed in "An overview of Equipment Survivability Studies at Sandia National Laboratories," Proceeding, International Meeting on Light Water Reactor Severe Accident Evaluation, August 28-September 1, 1983, and references cited therein.

10.1-2 Identify any safety-related equipment at VEGP that Intervenor's know contain such polymers.

RESPONSE: Intervenor's are unable to respond to this interrogatory at this early stage of the discovery process due to the inadequacies of Applicants' application. In its "Response to Intervenor's First Set of Interrogatories and Requests for Production of Documents" Applicants offered to

make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

10.1-3 For each of the polymers identified in response to Interrogatory No. 10.1-1, provide the following information:

- a) At approximately what total integrated dose do Intervenor contend that differing dose-rate effects become discernible?
- b) Describe the effect discerned at that total integrated dose with reference to specific mechanical and electrical properties.
- c) Explain the basis for the response to (a) and (b) above.
- d) Identify all documents that support or otherwise relate to the response to (a), (b), and (c) above.

RESPONSE: Intervenor are unable to respond to this interrogatory at this early stage of the discovery process due to the inadequacies of Applicants' application. In its "Response to Intervenor's First Set of Interrogatories and Requests for Production of Documents" Applicants offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

10.1-4. Do Intervenor contend that differing dose-rate

effects on the polymers identified in response to Interrogatory No. 10.1-1 have been observed in actual operational experience at any nuclear power plant? If so, provide the following information:

- a) At what plant(s) have such effects been discerned?
- b) Quantify the effects for each such plant and polymer.
- c) Identify all documents discussing or referring to dose-rate effects observed in actual operational experience.

RESPONSE: Intervenors are unable to respond to this interrogatory at this early stage of the discovery process due to the inadequacies of Applicants' application. In its "Response to Intervenors' First Set of Interrogatories and Requests for Production of Documents" Applicants offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenors will respond more fully to this interrogatory after reviewing said documentation.

10.1-5. With respect to seals, rings, gaskets, or other mechanical equipment containing the polymers identified in response to Interrogatory No. 10.1-1, do Intervenors contend that a maintenance/surveillance program is not an acceptable method to detect and correct irradiation effects? If Intervenors contend that such a program is not an acceptable method of detecting and correcting irradiation effects, explain

the basis for the response.

RESPONSE: A maintenance/surveillance program would, of course, serve as an adequate method to detect and correct radiation effects, provided many conditions were complied with. These would include: proper initial selection of equipment, full understanding of the normal and accident parameters which effect that equipment, and regular and complete inspection and replacement at the proper time intervals.

10.1-6. Identify each person whom you expect to call as an expert witness with respect to Contention 10.1. For each such person, state the subject matter on which he is expected to testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also, describe the educational and professional qualifications of each such person, and identify any previous proceeding in which that person has testified.

RESPONSE: Intervenors have not yet engaged a witness to testify in regard to this subject matter. Intervenors will supplement this reponse to provide the information requested when their witness has been identified.

Contention 10.3 (Multiconductor Configurations)

10.3-1. Identify precisely the SANDIA study or studies referred to by Intervenors in support of their proposition that in tests of EPR cable material, multiconductor configurations performed "substantially worse" than single conductor configurations.

RESPONSE: "An Overview of Equipment Survivability Studies at Sandia National Laboratories", Proceeding, International Meeting of Light Water Reactor Severe Accident Evaluation, August 28-September 1, 1983 and references cited therein.

10.3-2. Identify all documents referring to or discussing the study identified in your reponse to Interrogatory No. 10.3-1 above.

RESPONSE: At this time Intervenors are not aware of documents referring to the above-cited Sandia study.

10.3-3. Identify every multiconductor, other than those discussed in NUREG/CR-3538, which Intervenors contend has performed "substantially worse" in qualification tests than did the corresponding single conductor. Include in the identification the precise multiconductor configuration, its insulating material, and its jacketing material.

RESPONSE: Intervenors are currently preparing a list of these multiconductors which will include the information requested in Interrogatories 10.3-3, 10.3-4, 10.3-5 and 10.3-7. This information will be forwarded to Applicants upon its completion.

10.3-4. Describe the precise chemical or physical mechanism(s) that have caused any multiconductor configuration to perform "substantially worse" than the corresponding single conductor in environmental qualification tests.

RESPONSE: Intervenors are currently preparing this description. This information will be forwarded to Applicant upon its completion.

10.3-5. For each multiconductor identified in response to Interrogatory No. 10.3-3 above, describe the precise environmental conditions under which the multiconductor performed substantially worse than the corresponding single conductor.

RESPONSE: Intervenors are currently preparing this description and will provide it to Applicant upon completion.

10.3-6. Do Intervenors contend that any material other than chlorinated polyethelene jacketing in multiconductor configurations causes a multiconductor configuration to perform substantially worse than the corresponding single conductor configuration in environmental qualification tests? If so, explain the basis for your response and identify all documents that support it.

RESPONSE: Intervenors contend that EPR cable materials also performs substantially worse in multiconductor configurations. This position is supported by "An Overview of Equipment Survivability Studies at Sandia National Laboratories", Proceeding, International Meeting of Light Water Reactor Severe Accident Evaluation, August 28-September 1, 1983 and references cited therein.

10.3-7. Identify any insulating or jacketing material other than chlorinated polyethelene that Intervenors claim would be subject to the same mechanism described in the response to Interrogatory No. 10.3-4 above. Provide the basis for your response and identify all documents supporting it.

RESPONSE: Intervenors are currently preparing this information. The response will be forwarded to Applicant upon

its completion.

10.3-8. Identify each person whom you expect to call as an expert witness with respect to Contention 10.3. For each such person, state the subject matter on which he is expected to testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also, describe the educational and professional qualifications of each person, and identify any previous proceeding in which that person has testified.

RESPONSE: Intervenors have not yet engaged a witness to testify in regard to this subject matter. Intervenors will supplement this response to provide the information requested when their witness has been identified.

Contention 10.5 (Solenoid Valves)

10.5-1. Identify the specific model numbers of the ASCO solenoid valves that failed tests at the Franklin Research Center and that are listed in the FSAR at S 3.11 as being used in safety-related applications at VEGP.

RESPONSE: ASCO Solenoid Valves models NP8344 and NP8316.

10.5-2. Identify the precise test conditions under which the ASCO solenoid valves failed environmental qualification tests at Franklin Research Center.

RESPONSE: Upon heating to 340 degrees F many ASCO solenoid valves failed early and would have had little or no time to perform their safety functions.

10.5-3. In the Franklin Research Center tests, did test

temperatures to which the solenoid valves were exposed exceed 400H?

RESPONSE: Intervenors object to Interrogatory 10.5-3 on the grounds that it is not understandable as worded. Intervenors do not know the meaning of Applicant's term "400H" and thus cannot answer the interrogatory .

10.5-4. If the response to Interrogatory No. 10.5-3 is yes, state by how much the test temperatures exceeded 400H and explain why the Franklin Research Center test results are applicable to VEGP.

RESPONSE: Intervenors object to Interrogatory 10.5-4 on the grounds that the Interrogatory it refers to, 10.5-3, is not understandable as worded. Intervenors do not know the meaning of Applicant's term "400 H" and thus cannot answer the interrogatory.

10.5-5. Identify all documents which refer to or discuss the Franklin Research Center tests of the ASCO solenoid valves.

RESPONSE: "UCS Petition for Emergency and Remedial Action," February 7, 1984 at 9-11. 10.5-6. Explain the basis for Intervenors' statement that "several valves manufactured by ASCO failed early after exposure to 340 degrees..." Identify the model number(s) of the valves in question and all documents that support this statement.

RESPONSE: Model numbers NP8344A71E and NP831666E failed early after exposure to 340 degrees according to "UCS Petition for Emergency and Remedial Action," February 7, 1984 at 9-11.

The date of testing is unknown to Intervenor at this time.

10.5-7. What is the basis for Intervenor's statement that "...ASCO's own testing had shown poor performance of these valves..."? Identify the model number(s) of the valves in question, the date of the test, and all documents that support this statement.

RESPONSE: The basis is found in "UCS Petition for Emergency and Remedial Action," February 7, 1984 at 9-11. Model numbers are NP8344A71E and NP831666E; the date of testing is unknown to Intervenor at this time.

10.5-8. Identify each person whom you expect to call as an expert witness with respect to Contention 10.5. For each such person, state the subject matter on which he is expected to testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also, describe the educational and professional qualifications of each such person, and identify any previous proceeding in which that person has testified.

RESPONSE: Intervenor has not yet engaged a witness to testify in regard to this subject matter. Intervenor will supplement this response to provide the information requested when their witness has been identified.

Contention 10.7 (Hydrogen Recombiners)

10.7-1. Explain in detail why Intervenor contends that Applicants' environmental qualification of the VEGP hydrogen recombiner is inadequate.

RESPONSE: The VEGP implies that the hydrogen recombiner was not qualified to radiation. Subsequent information supplied by Applicants on June 27, 1984, including affidavit of William C. Ramsey, indicated that the components of the recombiner were tested and presumably qualified to radiation. No results are known to us (or presumably to Applicants and Westinghouse) that show the recombiner, as a unit, is qualified.

10.7-2. Identify all documents which relate to the adequacy of the environmental qualification of the VEGP hydrogen recombiner.

RESPONSE: See 10.7-1.

10.7-3. Identify each person whom you expect to call as an expert witness with respect to Contention 10.7. For each such person, state the subject matter on which he is expected to testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also, describe the educational and professional qualifications of each such person, and identify any previous proceeding in which that person has testified.

RESPONSE: Intervenors have not yet engaged a witness to testify in regard to this subject matter. Intervenors will supplement this response to provide the information requested when their witness has been identified.

Contention 11 (Unresolved Safety Issues)

11-1. Define the term "bubble collapse" and explain what phenomenon Intervenors refer to when Intervenors use this term.

RESPONSE: Intervenors use the term "bubble collapse" synonymously with "water hammer", a surge of force caused by rapid movement of water through a system.

11.2. Do Intervenors contend that "bubble collapse" is not a type of water hammer? If so, explain why and identify all documents that support the reponse.

RESPONSE: No.

11.3. Identify all NRC documents which define or explain the term "bubble collapse."

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-4. Explain in detail the basis for Intervenors' assertion that Westinghouse PWR steam generator tubes have shown evidence of degradation due to bubble collapse. Identify all documents that support your response.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-5. Describe the precise mechanism by which Intervenors contend that the VEGP steam generator tubes are susceptible to damage due to bubble collapse.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-6. What improvements in the VEGP steam generators, if any, do Intervenors contend are necessary to avoid tube damage

due to bubble collapse?

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-7. Identify any instance where bubble collapse has damaged steam generator tubes, and all documents discussing or referring to such instances.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-8. Explain in detail the basis for your contention that Westinghouse PWR steam generator tubes have shown signs of vibration induced fatigue cracking. Identify all documents that support your response.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-9. Explain in detail the basis on which you contend that degradation due to vibration induced fatigue cracking might be encountered in the Westinghouse Model F steam generators used at VEGP.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-10. Identify any instance where vibration induced fatigue cracking has been detected in the tubes of any Westinghouse Model F steam generator.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-11. What do you contend would be the source(s) of vibration that might induce fatigue cracking in the tubes of a Westinghouse Model F steam generator.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-12. Do Intervenors deny that vibration induced fatigue cracking is a phenomenon that has been associated only with once-through (non-Westinghouse) steam generators? If so, explain the basis for the denial and identify all documents that support your position.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-13. Do Intervenors contend that Applicants' analysis of flow-induced vibration in the FSAR at S. 5.4.2.3.3 is inadequate or incorrect? If so, explain in detail why the analysis is inadequate or incorrect.

RESPONSE: Intervenors cannot answer this interrogatory at this time. Intervenors will provide Applicants with a response as soon as possible.

11-14. Identify each person whom you expect to call as an expert witness with respect to Contention 11. For each such person, state the subject matter on which he is expected to

testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also, describe the educational and professional qualifications of each such person, and identify any previous proceeding in which that person has testified.

RESPONSE: Intervenor's have not yet engaged a witness to testify in regard to this subject matter. Intervenor's will supplement this response to provide the information requested when their witness has been identified.

Contention 12 (Cooling Tower Releases)

12-1. Define "salt" at the Intervenor's use that term in Contention 12.

RESPONSE: "Salt" is any pure or mixed inorganic compound containing a cation (generally from the group NH_4^+ , Li^+ , Na^+ , Mg^{+2} , K^+ , Ca^{+2} , Fe^{+2} , Fe^{+3} , Ba^{+2} , etc.) and an anion (generally from the group NO_3^- , F^- , PO_4^{-3} , SO_4^{-2} , Cl^- , Br^- , I^- , CO_3^{-2} , ClO_3^- , OCl^- , etc.) Often "salt" contains a high percentage of NaCl . A small amount of organic material may also be present.

12-2. Do Intervenor's disagree with the Applicants' salt deposition estimate provided in the OL-ER in response to questions E290.8 and E451.17? If so, explain precisely why Applicants' estimate is in error.

RESPONSE: Since the salt deposition rate estimated by Applicant was revised downward by a factor of ten for no apparent reason, we have no confidence in Applicant's ability to adequately estimate this quantity.

12-3. Do Intervenors disagree with Applicants' methodology for estimating and bounding salt deposition as described in Licensee's letter to the NRC Staff dated September 25, 1984, and in the OL-ER in response to question E290.8 and E451.17? If so, explain why.

RESPONSE: Intervenors are unable to respond to this interrogatory at the present time. In their "First Set of Interrogatories and Requests to Produce" Intervenors requested similar factional material from the Applicants as a starting point for their analysis. After reviewing Applicants' response and further reviewing additional scientific literature, Intervenors will supplement their response to this interrogatory.

12-4. Do Intervenors disagree with Applicants' cooling tower drift parameters (e.g. the salt concentration in drift or drift rate) as described in the OL-ER in response to question E290.8? If so, explain why.

RESPONSE: Intervenors are unable to respond to this interrogatory at the present time. In their "First Set of Interrogatories and Requests to Produce" Intervenors requested similar factional material from the Applicants as a starting point for their analysis. After reviewing Applicants' response and further reviewing additional scientific literature, Intervenors will supplement their response to this interrogatory.

12-5. Describe in detail what you contend would be the precise environmental effect of salt deposition as estimated by

Applicants. Identify all documents on which Intervenors' description of this effect is based.

RESPONSE: Intervenors are unable to respond to this interrogatory at the present time. In their "First Set of Interrogatories and Requests to Produce" Intervenors requested similar factional material from the Applicants as a starting point for their analysis. After reviewing Applicants' response and further reviewing additional scientific literature, Intervenors will supplement their response to this interrogatory.

12-6. What types of vegetation do Intervenors contend could be harmed by salt deposition from the VEGP cooling towers?

RESPONSE: Essentially all type of vegetation could be harmed, especially farm crops and pine and hardwood trees.

12-7. With respect to each type of vegetation identified in response to Interrogatory No. 12-6, what level of salt deposition do Intervenors contend would cause harm?

RESPONSE: Intervenors are currently preparing a response to this Interrogatory and will provide it to Applicants upon completion.

12-8. What is Intervenors' estimate of salt deposition from the VEGP cooling towers? Describe in detail the basis for that estimate and identify all documents which support or otherwise relate to that estimate.

RESPONSE: Intervenors currently have no independent estimate of the salt deposition.

12-9. Describe the precise environmental effect of salt

deposition as estimated by Intervenor. Identify all documents on which Intervenor's description of this effect is based.

RESPONSE: Intervenor cannot respond at this time as they currently have no independent estimate of salt deposition.

12-10. Define "chlorine gas" as Intervenor use the term in Contention 12.

RESPONSE: Any form of chlorine which is released to atmosphere other than chloride anion (Cl^-).

12-11. Describe the chemical reactions that Intervenor contend would occur when chlorine is injected into the cooling tower water at VEGP.

RESPONSE: The following reaction could occur when chlorine is mixed with cooling tower water (CTW) at VEGP:

$\text{Cl}_2 + \text{CTW} \longrightarrow$ no reaction, Cl_2 could be expelled from tower.

$\text{Cl}_2 + \text{CTW} \rightleftharpoons \text{H}^+ + \text{Cl}^- + \text{HOCl}$, HOCl is powerful oxidant, could be expelled from tower.

$\text{H} \quad \text{OCl} + ^-\text{OH} \rightleftharpoons \text{H}_2\text{O} + \text{OCl}^-$, reversible reaction depending on pH of solution, $K_a \approx 10^{-8}$,
OCl could be expelled from tower as salt.

$3 \text{HOCl} \rightarrow 2\text{HCl} + \text{HClO}_3$

$\text{HClO}_3 + \text{OH}^- \rightarrow \text{H}_2\text{O} + \text{ClO}_3^-$, powerful oxidant, could be

$\text{Cl}_2 + \text{CTW} \rightarrow$ - expelled from tower as salt.
 $\text{HCl} + \text{O}_2$

$\text{Cl}_2 + \text{CTW} \rightarrow$ R-Cl, chlorinated organic material
from impurities in CTW.

12-12. Do Intervenor agree that chlorine injected into the

cooling tower water will hydrolyze? If so, what do intervenors contend is the rate of reaction and how complete is the hydrolysis at standard temperature and pressure? If intervenors do not agree that the chlorine will hydrolyze, explain in detail the basis for disagreement.

RESPONSE: Some of the chlorine will hydrolyze.



The equilibrium constant for this reaction 25 degrees C is about 4.7×10^{-4} . The rate of reaction will depend strongly on the pH of solution temperature and the concentration and nature of impurities present. Since all of these factors are not known to us, the rate cannot be estimated.

If the reaction goes to completion (remember completing reaction shown in 12-11) then the ratio of Cl_2/HOCl is a function of pH. At pH 3.3 ratio is about 1.0. At pH 8 ratio is about 2.1×10^{-5} .

12-13. If chlorine were injected into the cooling tower water to obtain an initial, momentary concentration of 10 ppm, what concentration of chlorine gas in the cooling tower water do intervenors contend would exist after hydrolysis?

RESPONSE: This cannot be answered at present because the rate of reaction is not known.

12-14. Describe and explain in detail the precise mechanical and chemical actions that intervenors contend would result in the emission of chlorine gas from the VEGP cooling towers.

RESPONSE: The possible chemical reactions are summarized in

12-11. The mechanical actions would be the same as cause "salt drift".

12-15. Assuming injection of chlorine into the water in an amount sufficient to obtain an initial concentration of 10 ppm and based on the cooling tower parameters specified in the OL-ER in response to question E290.8, how much chlorine gas would be emitted from the cooling towers?

RESPONSE: This question cannot be answered based on theoretical parameters, as discussed in 12-12, and because of the complex chemistry as shown in 12-11.

12-16. Assuming the validity of the cooling tower parameters specified in the OL-ER in response to question E290.8 and that approximately 420 lbs. of chlorine would be injected into the cooling tower water over two thirty-minute periods each day, what amount of chlorine gas do Intervenor's estimate would be emitted from each cooling tower each day?

RESPONSE: This question cannot be answered based on theoretical parameters, as discussed in 12-12, and because of the complex chemistry as shown in 12-11.

12-17. What percentage of the amount of chlorine gas that Intervenor's estimate will be emitted from the cooling towers would reach the ground? Describe in detail the basis for the response and identify all documents which support the response.

RESPONSE: At the present time we cannot precisely estimate this quantity.

12-18. What would be the environmental effect of the chlorine gas that Intervenor's estimate would be released from

the cooling towers? Describe in detail the basis for the response and identify all documents that support the response.

RESPONSE: Since the amount of "chlorine gas" release cannot be precisely estimated, this question cannot be answered. However, since the purpose of chlorine injection is to kill all living organisms, and chlorine has been used as a war gas to kill humans, detrimental effects would be expected.

12-19. Identify each person whom you expect to call as an expert witness with respect to Contention 12. For each such person, state the subject matter on which he is expected to testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also, describe the educational and professional qualifications of each such person, and identify any previous proceeding in which that person has testified.

RESPONSE: Dr. Howard M. Deutsch, will testify for Intervenors on the subjects of salt and chlorine drift. Dr. Deutsch has a PhD in Chemistry (Georgia Tech, 1967) and is currently a Research Scientist II at the School of Chemistry, Georgia Tech, Atlanta, Georgia. He has not testified in any previous proceedings.

Contention 14 (TDI Diesel Generators)

14-1 and 14-2. Specify all defects claimed by Intervenor to have occurred in diesel generators manufactured by Transamerica Delaval, Inc. (TDI) and state whether each such defect is the result of the design or of the manufacture of the generators. For each defect identified in response to Interrogatory No. 14-1, identify all documents that describe the defect, its discovery, reporting or correction.

From "Delaval Diesel Generator Operation Experience" (unpublished summary of TDI problems as described in NRC and utility documents in the public record):

Defects which have occurred in diesel generators manufactured by Transamerica Delaval, Inc. (TDI) generators and installed at nuclear facilities include:

At the San Onofre 1 nuclear generating station, where two TDI diesel engines were installed in 1976, problems have included: 12/80--Excessive turbocharger thrust bearing wear (cause: no lube oil during standby); 7/81--Lube oil leak and fire (cause: excessive vibration of a lube oil test line which had inadvertently been left installed by the licensee); 12/81--Piston modification to prevent crown separation; 9/83--Unqualified instrument cable.

At the Grand Gulf nuclear station, two TDI engines have suffered the following problems: 11/81--Piston crown separation during operation (cause: holdown studs failed); 3/81--Excessive turbocharger thrust bearing wear (cause: no lube oil during standby); 6/11/82--Air starting valve capscrews too long for holes; 8/23/82--Flexible drive coupling material incompatible with operating environment; 8/82--Latching relay failed during testing; 3/8/82--Air start sensing line not seismically supported; 1/29/82--Governor lube oil cooler located too high, with the possibility of trapping air in system; 3/23/82--Engine pneumatic logic improperly designed (could result in premature engine shutdown); 4/29/81--Non-Class 1E motors supplied with EDG auxiliary system pumps; 3/15/82--Crankcase cover capscrew failed, head lodged in generator and shorted it out; 8/2/83--High pressure fuel injection line failed (cause: manufacturing defect in tubing); 9/4/83--Fuel oil line failed, caused major fire (cause: high cycle fatigue of Swagelok fitting); 8/11/83--Cracks in connecting push rod welds; 1983--Turbocharger vibration; 1983--Cracked jacket water welds (cause: excessive turbocharger vibration); 1983--Turbocharger mounting bolt failures (cause: excessive turbocharger vibration); 7/83--Air start valve failures (cause unknown); 10/28/83--Fuel oil leak, cracked push rod weld; During EDG Installation--Cylinder head cracks; 12/83--Cylinder head cracks; 12/83--Cracks in piston skirts on Division II EDG; 9/83--Unqualified instrument cable.

The three TDI diesel engines at the Shoreham nuclear station have suffered the following problems: 3/81--Excessive turbocharger thrust bearing wear (cause: no lube oil during standby); 12/81--Piston modifications to prevent crown

separation; 9/82--Engine jacket water pump modifications; 6/82--Air starting valve capscrews too long for holes; Spring/1983--Cracks in engine cylinder heads (cause: fabrication flaws); 3/83--Two fuel oil injection lines ruptured (cause: manufacturing defect in tubing); 3/83--Engine rocker arm shaft bolt failure (cause: high stress cycle fatigue); 8/12/83--Broken crankshaft, cracks in remaining crankshafts (cause: inadequate design); 9/83--Cracked connecting rod bearings (cause: inadequate design and substandard material); 10/83--Cracked piston skirts; 11/83--Broken cylinder head stud nuts; 9/83--Cracked bedplates in area of main journal bearings; 9/83--Unqualified instrument cable.

Problems have occurred with TDI Diesel Generators in marine applications

From U.S. Nuclear Regulatory Commission Office of Inspection and Enforcement "IE Information Notice No. 83-58: Transamerica Delaval Diesel Generator Crankshaft Failure" (SSINS No. 6835, IN 83-58) dated August 30, 1983:

"...emergency diesel generator (EDG) No. 102 failed during post-modification testing when its crankshaft assembly fractured at the crankpin and crankarm (web) on the generator side of the Cylinder No. 7 crank." Subsequent examination revealed numerous other cracks.

From U.S. Nuclear Regulatory Commission Office of Inspection and Enforcement "IE Information Notice No. 83-51: Diesel Generator Failures" (SSINS No.: 6835, IN 83-51), August 5, 1983:

"NRC has identified during the past five months more than 100 LERs pertaining to diesel generator problems. Most of these appear to be material, equipment or component failures. No single common thread can be identified."

"Because of the large number of diesel generator events it is not feasible to describe all the events reported. However, Attachment 1 to this information notice gives several representative examples..."

From "Evaluation for [sic] a Significant Deficiency/Evaluation for [sic] a Substantial Safety Hazard," prepared by Georgia Power Company and attached to a letter from D. O. Foster to James P. O'Reilly dated August 6, 1982:

"Field inspection at the Vogtle site has confirmed the use of deficient capscrews."

"Because the design and fabrication of the diesel generators for each unit is the same, a common mode failure could be postulated in the starting air valve assembly of both engines due to improperly sized capscrews. [Intervenors' note: the same point is true of any TDI deficiency.] The result of the common mode failure is a loss of power to both trains of the emergency core cooling system (ECCS) and most of the emergency safety features (ESF) equipment."

"This condition represents a deficiency found in design and construction, which, were it to have remained uncorrected could have affected adversely the safety of operations of the nuclear power plant and [sic] any time throughout the expected lifetime of the plant...[T]his condition also represents a significant deficiency in the final design such that the design of the diesel [sic] generators does not conform to the criteria and bases stated in the safety analysis report...[I]t could cause a loss of redundancy and required safety functions may not be able to be performed."

From a letter from R. E. Boyer, Manager, Quality Assurance, TDI, to Director, Office of Inspection & Regulation, U.S. NRC, dated December 9, 1981:

"There exists a potential problem in the Governor Lube Oil Cooler Assembly which could result in engine nonavailability. Transamerica Delaval has supplied the DSR and DSRV series engines with the potential defect to the...Georgia Power Company [for Plant] Vogtle S/N 76021/24...The Governor and Governor Lube Oil Cooler were manufactured by Woodward Governor Company of Fort Collins, Colorado. The Governor and Lube Oil Cooler were installed and piped on the engine by Transamerica Delaval...If the Governor Lube Oil Cooler is installed above (elevation) the oil level of the Governor, the possibility of air being trapped in the system occurs when the oil level in the Governor is low. If air is trapped in the Governor's Oil System, engine starting may be affected."

From a letter from R. E. Boyer to NRC dated September 27, 1983:

"There exists a potential problem with Engine Mounted Electrical Cables which could result in engine performance deterioration. Transamerica Delaval has supplied the DSR and DSRV Engines with the potential problem to...Georgia Power [for Plant] Vogtle, 76021/24 DSRV 16...These Electrical Cables are installed by Transamerica Delaval...[T]he manufacturers [sic] temperature rating for the cable insulation may be exceeded during operation of the Diesel Generator. There are two Cables in question. One is the Shielded Cables which run from the magnetic pickups to the engine junction boxes. These Cables are rated for 80 [degrees] C. The maximum expected operation temperature depends on ambient temperature. Failure of these Cables could prevent the closing of the output breaker depending on how this signal is used in the plant...The second cable is the Multi-conductor Cable which runs from the on engine terminal box to the Woodward Governor Actuator...Failure of this Cable would result in the Governor operating as a Hydraulic Speed Sensing Governor."

From Georgia Power report attached to letter from D. O. Foster to James P. O'Reilly dated March 1, 1983:

"[A] potential defect concern[s] engine piston skirt castings which could result in engine nonavailability...This...could result in engine failure if undetected." "Because the design and fabrication of the piston skirts for the diesel generators furnished for the Vogtle Project is essentially the same, it is reasonable to postulate a common mode failure of a piston skirt on both engines. This would cause the failure of both engines, resulting in a loss of power to both trains of the emergency core cooling system (ECCS), and most of the emergency safety features (ESF) equipment. Since the piston skirts furnished for Vogtle can be assumed to contain high residual stresses due to

the method of heat treatment, it is reasonable to assume a failure of the emergency onsite power supply and the consequential failure of the ECCS and ESF systems." "This concern does represent a significant deviation from performance specifications that will require an extensive repair to establish the adequacy of the diesel generators to perform their intended safety function." "[T]he improper heat treatment of the piston skirt castings represents a reportable deficiency and substantial safety hazard." "Because of the magnitude of the effort associated with [TDI's recommended] corrective action, Georgia Power Company is investigating with Transamerica Delaval, Inc. a number of questions regarding the logistics of the piston replacement. Also, based upon the current construction schedule, the diesel generator building will not be completed until 1985. Since the engines must be installed on their foundations and barred over, Georgia Power Company cannot begin corrective action until 1985, and currently estimates corrective action will be completed by December 1986.

From "Transamerica Delaval has supplied the DSR and DSRV engines to the following sites...", an unpublished summary of problems with TDI generators:

Problems at San Onofre 1: excessive turbocharger thrust bearing wear; lube oil leak and fire; piston modification to prevent crown separation; unqualified instrument cable; potentially defective governor coupling material.

Problems at Grand Gulf: piston crown separation; piston skirt cracks; fuel line failures--fire; cylinder head cracks; turbocharger problems; push rod cracks; generator short due to engine fastener failure; air starting valve problems.

Problems at Shoreham: jacket water pump problems; fuel oil lines ruptured; cylinder head cracks; crankshaft failures; connecting rod bearing failures; piston skirt cracks; failures of several different type fasteners.

Marine experience problems: cylinder head cracks (all operators); piston cracks and complete failures; excessive bearing wear; turbocharger problems; cracks in push rod welds; cracks in connecting rods; cylinder blocks.

From "Transamerica Delaval, Incorporated Vendor Program Branch Inspection History Summary of Nine Inspections During 1979-1983":

Number of Nonconformances/Violations: manufacturing process control--13; control of special processes--11; procurement control--12; material identity and control--1; design and document control--8; nonconformances and corrective action--5; equipment calibration--4; internal audits--1; 10 CFR Part 21 practices violations--3; QA records--3; miscellaneous--1.

In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory.

Intervenors will respond more fully to this interrogatory after reviewing said

documentation.

14-3. To what common mode failures do Intervenor claim that the VEGP diesel generators claim that the VEGP diesel generators are subject? Explain the basis for your response and identify all documents that support the response.

Because the design and fabrication of the diesel generators is the same for each unit, any TDI deficiency--manufacturing, design, material, etc.--could result in a common mode failure. This has been explicitly acknowledged by the Applicants; for example, in the letter from D. O. Foster to James P. O'Reilly dated March 1, 1983, Foster says, "Because the design and fabrication...for the diesel generators furnished for the Vogtle Project is essentially the same, it is reasonable to postulate a common mode...failure of both engines, resulting in a loss of power to both trains of the emergency core cooling system (ECCS), and most of the emergency safety features (ESF) equipment."

In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

14-4. With respect to the VEGP diesel generators, in what manner do intervenors contend that Applicants' QA/QC program was or is deficient?

Due to the extraordinary number of failures of TDI generators for which "[n]o single common thread can be identified," according to the NRC (see response to 14-1 and 14-2 above), the adoption of the TDI diesel generator for so vital a function as emergency backup power is in itself a breakdown in QA/QC. In addition, by the Applicants' own admission, at least some of the problems with the TDI generators at Plant Vogtle have not been corrected and will not be corrected until December 1986. Intervenor and the Licensing Board will be unable to ascertain the adequacy of the corrections until that time.

In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

14-5. In what manner do Intervenor's contend that TDI's QA/QC program was or is deficient?

The extraordinary number of failures of TDI generators in use at nuclear facilities (more than 100 LERs in five months, according to the NRC report cited above) is clear and unequivocal evidence of a severe breakdown of the QA/QC program at TDI. In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

14-6. Explain the basis for Intervenor's statement that Applicants failed to properly assess the suitability of the TDI diesel generators.

The fact that the Applicants selected such a clearly inadequate generator for so vital a role as emergency back-up power is itself evidence that the Applicants failed to properly assess the suitability of the TDI diesel generators. To suggest otherwise would be to suggest that the Applicant intentionally selected inadequate emergency back-up power, a suggestion Intervenor's do not make.

In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor will respond more fully to this interrogatory after reviewing said documentation.

14-7. Do Intervenor's contend that there are any problems with the VEGP diesel generators that have not been adequately corrected? If so, identify each such problem precisely, and if corrective action has been taken, explain why such action was inadequate.

Yes. The history of problems with TDI generators indicates that these generators are entirely inappropriate for emergency backup power. The specific problems outlined above demonstrate a pattern of QA/QC problems in materials, manufacturing and installation of TDI generators. Corrective actions have been taken for some of the specific problems, but this does not preclude additional problems in the future. On the contrary, all indications are that more problems will occur, and it appears to be largely a matter of chance as to whether a problem will be discovered during a test or will be discovered when the generator fails to provide power in an emergency. Other specific problems have not been corrected. The Applicants state, as cited above, that at least one problem will not be corrected until December, 1986. In addition, in its "Response to Intervenor's First Set of Interrogatories and Request for Production of Documents," Applicant offered to make available certain additional documentation relevant to the subject matter of this interrogatory. Intervenor's will respond more fully to this interrogatory after reviewing said documentation.

14-8. Identify each person whom you expect to call as an expert witness with respect to Contention 14. For each such person, state the subject matter on which he is expected to testify, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each such opinion. Also, describe the educational and professional qualifications of each such person, and identify any previous proceeding in which that person has testified.

Intervenor's have not yet engaged a witness to testify with regard to this subject matter. Intervenor's will supplement this response to provide the information requested when their witness has been identified.

ANSWERS TO GENERAL INTERROGATORIES

G-1 List separately for each interrogatory response the name, title or position, address, and employer of each person who provided information used in that response. The Intervenor's responses to the Applicants' first interrogatories were prepared by the Intervenor's attorney and by the Executive Director of Campaign for a Prosperous Georgia based upon information received from the following persons:

Dr. Howard Deutsch, Professor of Chemistry, Georgia Institute of Technology, 765 Myrtle Street, N.E., Atlanta, Georgia 30308. Interrogatories 10.1-1 through 10.1-6, 10.3-1 through 10.3-8, 10.5-1 through 10.5-8, 10.7-1 through 10.7-3, 11-1 through 11-14 and 12-1 through 12-19.

Carol Gelbaum, 1714 N. Holly Lane, Atlanta, Georgia 30329, geologist formerly with Georgia Institute of Technology and State of Georgia. Interrogatories 7-1, 7-2, 7-3, 7-7, 7-11, 7-22, and 7-25.

Professor William Lawless, Paine College, Post Office Box 12172, Augusta, Georgia 30904, formerly employed at the Savannah River Plant. Interrogatories 7-3, 7-4, 7.6, 7.7, 7.10, 7-12, 7-16, 7-18 through 7-21, and 7-23 through 7-27.

Tim Johnson, Executive Director, Campaign for a Prosperous Georgia, 175 Trinity Avenue S.W., Atlanta, Georgia 30303, formerly with Georgia Public Service Commission, formerly served on advisory panel to U.S. Nuclear Regulatory Commission (on paying for decommissioning of nuclear power plants). Interrogatories 7-1 through 7-34 and 14-1 through 14-8.

G-2 List separately for each interrogatory response each document that Intervenor used or referred to in preparing the response to that Interrogatory.

"An Overview of Equipment Survivability Studies at Sandia National Laboratories," Proceeding, International Meeting on Light Water Reactor Severe Accident Evaluation, August 28-September 1, 1983. 10.1, 10.3-1, 10.3-6.

UCS Petition for Emergency and Remedial Action, February 7, 1984 at 9-11. 10.5-1, 10.5-2, 10.5-3, 10.5-4, 10.5-5, 10.5-6, 10.5-7.

VEGP FSAR. 10.7-1 and 10.7-2.

Affidavit of William C. Ramsey, June 27, 1984. 10.7-1 and 10.7-2.

"Savannah River Plant Burial Ground Management Appraisal Report," June 2-13, 1980, unpublished, US-DOE/SR Draft Report, final draft November 1, 1982, by William Lawless. 7-3, 7.4, 7.6, 7.7, 7-10, 7-18, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-26, 7-27, 7-30 and 7-31.

"Savannah River Plant Offsite Radioactive Releases," draft December 15, 1985, William Lawless. Undergoing peer review comments for publication January 1985. 7-3, 7.4, 7.6, 7.7, 7-10, 7-18, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-26, 7-27, 7-30 and 7-31.

DOE SRP L-Reactor FEIS, Report #DOE/EIS-0108 (3 volumes) (1984) (and the drafts therefor). 7-3, 7.4, 7.6, 7.7, 7-10, 7-18, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-26, 7-27, 7-30 and 7-31.

Dupont Letter Report, J.S. Roberts, September 10, 1984--"Deep Wells 905-20A, 31A, and 82A Service History, 8/4/84-8/15/84." 7-3, 7.4, 7.6, 7.7, 7-10, 7-18, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-26, 7-27, 7-30 and 7-31.

"Technical Summary of the A/M Groundwater Remedial Action Program," J. L. Steel, Dupon draft report ca. 3/84. 7-3, 7.4, 7.6, 7.7, 7-10, 7-18, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-26, 7-27, 7-30 and 7-31.

"Assessment of the Presence of Volatile Organic Compounds of Water Supply Well 53A-A/M Area, Savannah River Plant," Geraghty & Miller, Dupont subcontractor report, 1983. 7-3, 7.4, 7.6, 7.7, 7-10, 7-18, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-26, 7-27, 7-30 and 7-31.

"Delaval Diesel Generating Operating Experience," unpublished summary of TDI problems as described in NRC and other documents in the public record. 14-1, 14-2, 14-4, 14-5, 14-6 and 14-7.

"IE Information Notice No. 83-58: Transamerica Delaval Diesel Generator Crankshaft Failure" (SSINS No. 6835, IN 83-58), U. S. Nuclear Regulatory Commission Office of Inspection and Enforcement, August 30, 1983. 14-1, 14-2, 14-4, 14-5, 14-6 and 14-7.

"IE Information Notice No. 83-51: Diesel Generator Failures," (SSINS No.: 6835, IN 83-51), U.S. Nuclear Regulatory Commission Office of Inspection and Enforcement, August 5, 1983. 14-1, 14-2, 14-4, 14-5, 14-6 and 14-7.

"Evaluation for a Significant Deficiency/Evaluation for a Substantial Safety Hazard," attached to a letter from D. O. Foster, Georgia Power Company, to James P. O'Reilly, U.S. Nuclear Regulatory Commission, August 6, 1982. 14-1, 14-2, 14-3, 14-4, 14-5, 14-6 and 14-7.

Letter from R. E. Boyer, manager, quality assurance, TDI, to Director, Office of Inspection and Regulation, U.S. Nuclear Regulatory Commission, December 9, 1981. 14-1, 14-2, 14-4, 14-5, 14-6 and 14-7.

Letter from R. E. Boyer, manager, quality assurance, TDI, to Director, Office of Inspection and Regulation, U.S. Nuclear Regulatory Commission, September 27, 1983. 14-1, 14-2, 14-4, 14-5, 14-6 and 14-7.

Report attached to letter from D.O. Foster to James P. O'Reilly, March 1, 1983. 14-1, 14-2, 14-3, 14-4, 14-5, 14-6 and 14-7.

"Transamerica Delaval has supplied the DSR and DSRV engines to the following sites...", an unpublished summary of problems with TDI generators. 14-1, 14-2, 14-4, 14-5, 14-6 and 14-7.

"Transamerica Delaval, Incorporated Vendor Program Branch Inspection History Summary of Nine Inspections During 1979-1983." 14-1, 14-2, 14-4, 14-5, 14-6 and 14-7.

RESPONSES AND OBJECTIONS TO REQUEST FOR PRODUCTION OF DOCUMENTS

1. Applicants request that Intervenor produce or make available for inspection and copying each and every document identified or described in the answer to any of the specific interrogatories above.

RESPONSE: Intervenor will make these documents available for inspection and copying at the offices of Campaign for a Prosperous Georgia at 175 Trinity Avenue.

2. Applicants request that Intervenor produce or make available for inspection and copying each and every document that Intervenor use or referred to in preparing the response to any of the specific or general interrogatories above.

RESPONSE: Intervenor will make these documents available for inspection and copying at the offices of Campaign for a Prosperous Georgia at 175 Trinity Avenue.

3. Applicants request that Intervenor produce or make available for inspection and copying all correspondence between Intervenor and anyone else concerning any of the admitted contentions.

RESPONSE: Intervenor object to Request 3 on the grounds that it is overly broad and is unduly burdensome and oppressive to Intervenor; that it constitutes an invasion of the privacy of Intervenor and requests production of documents protected from discovery by the attorney-client privilege and the work product privilege; and that it seeks information that is not relevant to the subject matter of this proceeding nor reasonably calculated to lead to the discovery of admissible evidence.

Respectfully submitted, this, the 5th day of December, 1984

Tim Johnson

Tim Johnson
Executive Director
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for Intervenor Campaign for a
Prosperous Georgia and
Georgians Against Nuclear Energy

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

GEORGIA POWER CO., et al.

(Vogtle Electric Generating Plant,
Units 1 and 2)

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Docket Nos. 50-424 and 50-425

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'84 DEC 11 P2:28

CERTIFICATE OF SERVICE

This is to certify that copies of the foregoing Response to Applicant's First Set of Interrogatories and Request for Production of Documents and related materials were served by deposit with the U. S. Postal Service in the City of Atlanta for first class delivery to those listed on the attached Service List this 5th day of December, 1984.

Tim Johnson

Tim Johnson
Executive Director
Campaign for a Prosperous Georgia

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
GEORGIA POWER CO., <u>et al</u>)	Docket Nos. 50-424
)	50-425
(Vogtle Electric Generating)	
Plant, Units 1 and 2))	

SERVICE LIST

Morton B. Margulies, Chairman Atomic Safety & Licensing Board US Nuclear Regulatory Commission Washington, D.C. 20555	Atomic Safety & Licensing Appeal Board Panel US Nuclear Regulatory Commission Washington, D.C. 20555
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Mr. Gustave A. Linenberger Atomic Safety & Licensing Board US Nuclear Regulatory Commission Washington, D.C. 20555	Bernard M. Bordenick, esq. Office of the Executive Legal Director US Nuclear Regulatory Commission Washington, D.C. 20555
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