UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	Docket Nos. 50-348-CivP
ALABAMA POWER COMPANY	)	50-364-Civ.?
	)	
(Joseph M. Farley Nuclear	)	
Plant, Units 1 and 2)	)	ASLBP No. 91-626-02-CivP

DIRECT TESTIMONY OF ALABAMA POWER COMPANY

VOLUME I

Testimony of:

a. David Huber Jones/
Bernard Douglas McKinney, Jr.

b. Robert Berryhill

c. William B. Shipman

Alabama Power Company

the southern electric system

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TESTIMONY OF DAVID HUBER JONES AND
BERNARD DOUGLAS MCKINNEY, JR.
ON BEHALF OF ALABAMA POWER COMPANY

GENERAL BACKGROUND

Q1. Please state your name and provide the Board with your educational and employment background.[1]

A: (Jones) My name is David Huber Jones. I am currently Manager of Engineering Support, Farley Nuclear Plant, for Southern Nuclear Operating Company, Inc. I received a Bachelor of Science degree in Civil Engineering from Auburn University in 1979. Then, I joined Alabama Power Company as a Junior Engineer in the Eastern Division. After approximately one year, I was assigned to the nuclear support group for Farley Nuclear Plant and have held various engineering positions and responsibilities associated with supporting plant operations. In 1986, I was assigned my

[1] Unless noted otherwise, the responses to each question will be sponsored by both Mr. Jones and Mr. McKinney.

current responsibilities, which are to supervise the eight people in my group. We provide a full range of technical and engineering services to Farley Nuclear Plant.

A: (McKinney) My name is Bernard Douglas McKinney, Jr. I am employed by Southern Nuclear Operating Company, Inc., as the Manager of Nuclear Engineering and Licensing. I am a graduate of the University of Alabama where I earned a Bachelor of Science degree in Mechanical Engineering in 1973. I also have a Senior Reactor Operator's License for Farley Nuclear Plant Unit 1. After graduation, I joined Alabama Power Company as a Junior Engineer at Farley Nuclear Plant. In 1978, I was transferred to Birmingham as a project engineer for the Farley Engineering Services support group. I was designated as Supervisor in 1982, and in 1988 became Manager of Nuclear Engineering and Licensing.

Q2. What is Southern Nuclear Operating Company, Inc.?

A: Southern Nuclear Operating Company, Inc. (Southern Nuclear) is a wholly owned subsidiary of The Southern Company. On December 23, 1991, Southern Nuclear became the licensed operator of Farley Nuclear Plant, which is owned by Alabama Power Company, another wholly owned subsidiary of The Southern Company. During all times relevant to this case, however, the

licensed operator of Farley Nuclear Plant was Alabama Power Company.

Q3. What is the purpose of your testimony?

A: The purpose of our testimony is twofold: First, we will provide a general overview of Alabama Power Company's response to the Staff's Notice of Violation (NOV) and resulting Order imposing a $450,000 civil penalty for alleged EQ violations. Second, because of our personal involvement in Alabama Power Company's EQ compliance efforts, including the preparatory work for the EQ inspection in 1987, we will also provide more detailed testimony on the issues raised in this proceeding. In this way we hope to provide the Board with the proper framework to evaluate the testimony of other witnesses on the various technical issues.

Q4. Please summarize for the Board the general overview of Alabama Power Company's positions in this enforcement hearing.

A: Alabama Power Company's answer to this proposed civil penalty has two principal parts: legal issues and evidentiary or fact issues. The primary legal issues will be articulated and argued in detail by legal counsel. These issues have, however, been presented once in Alabama Power Company's response to the Notice of Violation and Proposed Imposition of

Civil Penalty. (Staff Ex. 15, Attachment 2 at pp. 2-12). Generally, though, we understand that the Company's contention is that the Modified Enforcement Policy, under which this enforcement action is proceeding, violates the Atomic Energy Act, section 234, by allowing escalated enforcement action for alleged violations that have no safety significance. The basis for this position is that the Modified Enforcement Policy specifically disclaims any attempt to determine actual operability of the affected equipment, assuming instead that "unqualified equipment" is equipment for which inadequate documentation exists, and that this in turn equates to equipment that will not perform its intended function. Because Alabama Power Company had reasonable assurance that each item of electrical equipment relevant here would perform its intended function, we feel that the civil penalty is disproportionate to any alleged violation of 10 CFR 50.49.

The evidentiary or fact issues have two components: The regulatory process and the enforcement process. We define the regulatory process as an evaluation of whether Alabama Power Company, as of November 30, 1985, was in compliance with 10 CFR 50.49. We think it was, and Alabama Power Company will present testimony of numerous experts on this point. Moreover, the evidence will show that Farley Nuclear Plant received no fewer than three Technical Evaluation Reports (TERs), six Safety Evaluation Reports (SERs), two EQ plant

audits and one operating license issued prior to the deadline. These important Staff and NRC communications and actions, when coupled with EQ compliance efforts, provided reasonable assurance that Alabama Power Company was in compliance with 10 CFR 50.49.

Moreover, it must be recognized that the inspectors at Farley Nuclear Plant in 1987 raised many questions regarding the qualification or qualifiability of the equipment items at issue here. Many of these questions were fundamentally at odds with the prior approvals on the Plant dockets. In addition, as our experts will show, the inspectors' questions often lacked technical merit or support. Alabama Power Company tried to explain the Company's position during and after the inspection. They will do so again in this forum.

The enforcement process is an additional analysis. Because of the unique nature of the Modified Enforcement Policy, Alabama Power Company contends that even if 10 CFR 50.49 violations occurred, then under the Modified Enforcement Policy, no civil penalty is justified. This is for two principal reasons: First, the Staff cannot meet its burden of proving that Alabama Power Company, prior to November 30, 1985, "clearly knew or should have known" of the lack of proper environmental qualification of the pertinent equipment. Second, the Staff has improperly refused to consider information available to

the inspectors showing that certain items of equipment were qualified for the application in question, in contravention of sound policy as well as Section III of the Modified Enforcement Policy. Their approach leads to the absurd result that any attempt by Alabama Power Company to refute a Staff question became an "after the fact" analysis that would not be considered.

Finally, if this Board is inclined to sustain a civil penalty at any level, Alabama Power Company contends that it exercised its best efforts to "complete EQ within the deadline," as evidenced by the two EQ audits, the TERs, the Unit 2 full power operating license, and the numerous SERs. Importantly, the last SERs, issued in December, 1984, said, "Based on our reviews, we conclude that the Alabama Power Company Environmental Qualification Program is in compliance with the requirements of 10 CFR 50.49 . . . ." Accordingly, at least 50% mitigation should be allowed (in addition to the mitigation already allowed by the Staff in the Order).

Q5. Can you be more specific about the evidentiary or fact issues in this escalated enforcement action?

A: Yes. The underlying basis for the NOV and the subsequent Order Imposing a Civil Monetary Penalty is that the level of documentation Alabama Power Company had in its qualification

file during the inspection was insufficient. Our evidence will be, however, that a reasonable engineer, knowledgeable in EQ requirements, would determine that our documentation provided reasonable assurance for qualification. Said another way, the current enforcement Staff has failed to consider Alabama Power Company's legitimate and necessary exercises of engineering judgment in making a determination of the qualification of electrical equipment or in assigning a satisfactory level of documentation demonstrating such qualification. The Staff inspectors were applying a new, heightened standard for documentation -- far exceeding the approach deemed sufficient in the regulatory process prior to November 30, 1985.

Prior to the deadline, both the Staff and Alabama Power Company routinely used undocumented engineering judgment to determine equipment qualification. This is evidenced by the Franklin Research Center TERs, the transcript of the hearing at which the Unit 2 operating license was issued, and other communications from the Staff. However, for enforcement purposes, that standard was changed. According to Messrs. Luehman, Potapovs and Walker, in their testimony concerning enforcement, at page 3, "[A] licensee's inability to present documented knowledge of whether [EQ] equipment is capable of operating means that the equipment is unqualified and subject to escalated enforcement action. Alabama Power Company

witnesses, two of which were key NRC personnel in EQ in the early 1980's, will explain why Alabama Power Company's interpretation of EQ requirements before the deadline was proper.

Moreover, Alabama Power Company contends that another underlying basis for the Order is the Staff's reliance, for enforcement purposes, on an evolving level of knowledge obtained after the deadline. The evidence will establish that as the Staff, through their inspections of other plants and continuing research in the industry, learned more and more about the qualification of EQ equipment, it imputed this new knowledge to licensees by claiming that they "clearly knew or should have known" of this knowledge prior to the deadline. This also effectively raised the level of documentation expected to demonstrate qualification. Then, when Alabama Power Company failed to meet this new documentation level, the current enforcement staff imposed a civil penalty under the Modified Enforcement Policy as if the licensee "clearly knew or should have known" of the new knowledge. To prove this, Alabama Power Company will show that in August, 1987, one month before the start of Farley Nuclear Plant's EQ inspection, Sandia National Laboratories held an "Equipment Qualification Seminar" attended by many of the inspectors who later came to the Plant. The agenda from that seminar vividly demonstrates that the equipment qualification problems

discussed in August, 1987 were substantially similar to those raised in Alabama Power Company's EQ in November, 1987, inspection and this enforcement action. (APCo Exhibit 1).

In addition, Alabama Power Company contends that, without imputing its post-deadline knowledge to Alabama Power Company's pre-deadline state of mind, the Staff cannot meet its burden of proving that Alabama Power Company met the "clearly knew or should have known" standard required by the Modified Policy prior. As the Modified Policy states:

> If violations of the EQ rule identified at plants operating after November 30, 1985 existed before the deadline and the licensee "clearly knew or should have known" of the lack of proper environmental qualification, then enforcement action may be taken as described in Sections III and IV. If the licensee does not meet the "clearly knew or should have known" test, no enforcement action will be taken.

Modified Enforcement Policy for EQ Requirements, at page 1, emphasis added (APCo Exhibit 2).

As the testimony will make clear, the Staff's position on many of the issues is predicated on the adequacy, or alleged lack thereof, of documentation demonstrating qualification. The current enforcement Staff has improperly rejected Alabama Power Company's arguments and analyses presented or available at the inspection, at the enforcement conference, or included in other submittals, as irrelevant "after the fact" justifications. Our testimony will show that any alleged documentation "deficiencies" did not have safety significance

because the equipment at issue was indeed capable of performing its safety function during a design basis accident. More importantly, we dispute the Staff's characterization of our analyses as "after the fact." We believe that in most instances when the Staff questioned documentation (usually based on new, heightened documentation expectations), Alabama Power Company had reasonable assurance to believe that the equipment was qualified as of the deadline. Alabama Power Company provided further information to confirm that judgment or to rebut unfounded Staff arguments. Consistent with the Modified Enforcement Policy, Section III, alleged documentation "deficiencies" such as these can be remedied by file additions "developed during the inspection" and should not be treated as sufficiently significant to warrant a civil penalty. The Modified Enforcement Policy states:

> However, although not in the qualification file, if sufficient data exists or is developed during the inspection to demonstrate qualification of the equipment or, based on other information available to the inspector, the specific equipment is qualifiable for the application in question, the qualification deficiency is not considered sufficiently significant for assessment of civil penalties.

Modified Enforcement Policy for EQ Requirements, at page 2 (APCo Exhibit 2).

Finally, Alabama Power Company will establish that it exercised its best efforts to achieve compliance with 10 CFR 50.49 prior to the deadline and thus is entitled to a 50% mitigation of any base civil penalty which may be imposed.

While we believe that the current enforcement Staff cannot prove that the "clearly knew or should have known" test was met or that the "sufficiently significant" test described in Section III of the Modified Enforcement Policy was met (both of which must be satisfied to sustain any base civil penalty), the evidence will be that Norman Merriweather, the NRC EQ inspection team leader, thought Alabama Power Company's EQ efforts were significant. In his sworn deposition, he testified:

> Q: But can't you say, though, that by December 1984, substantial and significant effort had been put forth by Alabama Power Company to comply with the various EQ requirements promulgated by the staff?
>
> A: I would say significant effort, yes.
>
> . . .
>
> Q: Okay. Well, let me ask sort of a different -- the same question in a different way. Are you aware, as a result of your review of this SER and the NRC files, of any concerns, as of December 13th, 1984, any concerns that the NRC had about the effort put forth by Alabama Power Company to comply with EQ?
>
> A: No, I'm not aware of any concern.

Merriweather Deposition, Volume 3, at p. 82. Moreover, at frequent intervals throughout the pre-deadline period, Alabama Power Company's responsiveness and best efforts to comply were implicitly acknowledged by the Staff as Alabama Power Company received these favorable communications from the Staff about its compliance with EQ requirements.

DEVELOPMENT OF EQ RULE

Q6. Please explain, in general terms, your understanding of the historical background of the EQ rule.

A: In 1977, the Union of Concerned Scientists petitioned the NRC requesting various actions related to fire protection for electrical cables and environmental qualification of electrical components in nuclear power reactors. In response, on April 13, 1978, the Commission ordered, among other things, that the Staff concentrate on the "safety adequacy and environmental qualification of all Class 1E electrical equipment." 7 NRC 400, 420 (1978) (APCo Exhibit 3).

On May 31, 1978, in response to the Commission's order, the Staff issued IE Circular 78-08 entitled "Environmental Qualification of Safety Related Electrical Equipment at Nuclear Power Plants." (APCo Exhibit 4). This Circular recommended that all licensees (except a few included in a separate program) examine installed safety related electrical equipment and "ensure appropriate documentation of its qualification to function under postulated accident conditions." It also informed licensees that "NRC inspectors will review these matters with licensees in future inspections." Although no written response was required,

Alabama Power Company provided one which addressed certain issues raised by the Circular. (APCo Exhibit 5).

Then, on February 8, 1979, the Staff issued IE Bulletin 79-01. (APCo Exhibit 6). The purpose of this communication was to raise the threshold of Circular 78-08 to the level of a Bulletin, requiring a written response. The response required by the Bulletin was a re-review of the environmental qualification of safety related electrical equipment as described in Circular 78-08. Bulletin 79-01 also requested licensees to provide written evidence of qualification of electrical equipment required to function under accident conditions. As in the case of Circular 78-08, the Staff said that NRC inspectors would continue to monitor the licensees' progress in completing the requested action.

However, Bulletin 79-01 was revised twice: 79-01A and 79-01B. (APCo Exhibits 7 and 8). Because many of the licensees' responses to 79-01 indicated certain deficiencies, the Staff concluded that generic criteria were needed for evaluating the environmental qualification of electrical equipment at all plants. As a result, the Division of Operating Reactors (DOR) prepared a document entitled "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors." These "DOR Guidelines" were intended to be used by each licensee to evaluate its own qualification

documentation. In January, 1980, the Staff formally issued to the industry the DOR Guidelines as Attachment 4 to IE Bulletin 79-01B. The Staff had already employed Franklin Research Center to review environmental qualification documentation and to present to the Staff the results in the form of a Technical Evaluation Report (TER) for each licensed unit. Then, on February 5, 1980, the Staff issued NUREG-0588, which provided licensees with the Staff's technical positions on selected areas of environmental qualification. It, too, provided guidance on how to comply with the environmental qualification requirements.

In April, 1980, the Commission formed the Equipment Qualification Branch of the newly created Division of Engineering and named Philip A. DiBenedetto as its first Section Leader for Environmental Qualification. This branch was assigned responsibility for reviewing the status of equipment qualification for plants, including Farley Nuclear Plant.

Then, on May 23, 1980, the NRC issued Memorandum and Order CLI-80-21. (APCo Exhibit 9). It said:

> The Commission considers the staff's review of the 79-01B Bulletin responses to be of high priority, and the staff is requested to keep the Commission and the public apprised of any further findings of incomplete environmental qualification of safety-related electrical equipment, along with corrective actions taken

[illegible]nned. The staff is requested to provide bimonthly reports of progress on this review. The staff is directed to complete its review of environmental qualification, including the publication of Safety Evaluation Reports by February 1, 1981. By no later than June 30, 1982 all safety-related electrical equipment in all operating plants shall be qualified to the DOR Guidelines or NUREG-0588. These deadlines, however, do not excuse a licensee from the obligation to modify or replace inadequate equipment promptly.

11 NRC 714-15 (1980).

Q7. When did the Commission issue its final rule on environmental qualification and how does it apply to this proceeding?

A: The final rule on environmental qualification, codified at 10 CFR 50.49, was issued by the Commission on January 21, 1983. This rule required each holder of or applicant for a license to establish a program for qualifying certain electrical equipment important to safety. The rule imposed a qualification deadline of November 30, 1985. For Farley Nuclear Plant, 10 CFR 50.49(k) did not require re-qualification of existing electrical equipment since the NRC had previously required qualification of that equipment in accordance with DOR Guidelines (applicable to Unit 1) and NUREG-0588 (Category II) (applicable to Unit 2). Thus, for the electrical equipment relevant to this enforcement hearing, all of which was already installed at the plant, the promulgation of 10 CFR 50.49 did not require any re-

qualification; Alabama Power Company could take credit for its previous efforts to comply with the evolving EQ requirements and the Staff's evaluation of these efforts.

However, the current enforcement Staff has not given Alabama Power Company this credit. Instead, this enforcement action is based on post-deadline knowledge, interpretations, and expectations, not those existing prior to the compliance deadline. When Farley Nuclear Plant received its EQ inspection in late-1987, the Staff had conducted over thirty other inspections and applied to the Plant, retroactively, this acquired knowledge compiled over the two years after the compliance deadline. Not surprisingly, the Staff now contends that Farley Nuclear Plant no longer met 10 CFR 50.49 by the deadline. This explains, of course, why in this enforcement hearing the Staff attempts to ignore its December 13, 1984 conclusion that based on its many EQ reviews of Farley Nuclear Plant, "Alabama Power Company's Environmental Qualification Program is in compliance with the requirements of 10 CFR 50.49 . . . ."

ALABAMA POWER COMPANY'S EQ COMPLIANCE EFFORTS

Q8. Now that you have provided your understanding of the development of the EQ rule, will you please explain Alabama Power Company's compliance efforts?

A: Yes. Like the evolutionary process associated with the development of the EQ rule, Alabama Power Company's response to the various Staff and NRC communications was evolutionary and cumulative. We have previously testified about the response Alabama Power Company prepared for Circular 78-08, even though a response was not required. This early initiative was indicative of the seriousness with which the Company viewed environmental qualification and the resources which it was willing to devote to it. In response to Bulletin 79-01B, Alabama Power Company, in conjunction with Bechtel and Southern Company Services, Inc., developed a Master List for Unit 1 and submitted it to the Staff for approval. This list was subsequently revised as a result of Staff review and input. As for Unit 2, which was classified as a Near Term Operating License (NTOL) plant, it was the subject of an environmental qualification audit conducted by the Equipment Qualification Branch of the NRC. On September 22-24, 1980, Staff members from this branch, supervised by Mr. DiBenedetto, visited Unit 2, "for the purpose of auditing the applicant's environmental qualification documentation and/or test data for safety-related electrical equipment." The trip report from this visit, dated May 27, 1981, is APCo Exhibit 10. The conclusion of that EQ audit was that "the documentation supporting the environmental qualification of the audited items was found satisfactory except in two cases." Those two

cases are not associated with electrical equipment at issue in this enforcement hearing.

Then, on December 2-5, 1980, Farley Nuclear Plant was the subject of another environmental qualification inspection. (APCo Exhibit 11). That inspection involved a review of installed equipment of both units "with respect to IE Bulletin 79-01B and NUREG 580." (It is believed that the inspector meant to say NUREG 0588.) A page from this inspection report is illustrative of the work performed by the inspector and is shown for ease of reference. From this page, it is apparent that the inspector reviewed the Hydrogen Recombiner, and 5:1 splice that is at issue in this proceeding, and deemed it to be qualified.

HYDROGEN RECOMBINER

Q2E17G001A-A	H Recombiner	Westinghouse	APR-GHREEE-01
Q2E17G001B-B	H Recombiner	Westinghouse	APR-GHREEE-02

CHEMICAL AND VOLUME CONTROL

Q2E21V038A	Motor Operator	Limitorque	SMB-4
Q2E21V038B	Motor Operator	Limitorque	SMB-4
Q2E21V038C	Motor Operator	Limitorque	SMB-4
N2E21ZS8149A	Limit Switch	NAMCO	EA180/11302
N2E21ZS8149B	Limit Switch	NAMCO	EA180/11302
N2E21ZS8149C	Limit Switch	NAMCO	EA180/11302
Q2E21SV8149AB	Solenoid Valve	ASCO	NP831654E
Q2E21SV8149BB	Solenoid Valve	ASCO	NP831654E
Q2E21SV8149CB	Solenoid Valve	ASCO	NP831654E

CONTAINMENT COOLING AND PURGE

Q2E14V004	Motor Operator	Limitorque	SMB000

The equipment inspected was examined for proper installation, overall interface integrity and manufacturers nameplate date was obtained. The nameplate data obtained was compared to the information listed in the licensee's report. Several minor differences were identified and the licensee's report is being updated.

Within the areas examined there were no identified violations.

Furthermore, during this very active period, additional effort was undertaken by Alabama Power Company to respond to IE Bulletin 79-01B. As noted, a Master List was prepared and sent to the Staff for approval. On December 10, 1980, the Staff prepared a Technical Evaluation Report which evaluated both the submittal by Alabama Power Company and the results of the December EQ inspection. That TER is APCo Exhibit 12 and, coincidentally, was prepared by Mr. Norman Merriweath who was subsequently named team leader for Alabama Power Company's 1987 EQ inspection. One of the objectives of this TER was to categorize equipment "that is considered to meet IEB 79-01B requirements ...." If it did, then the TER assigned a numerical category of "1," which meant that the equipment was qualified. For ease of reference, a sample sheet from that TER is included.

PLANT: FARLEY 1

SYSTEM: Rx Coolant - Steam Generator (SG)

ATTACHMENT 1
FOR IEB 79-01B
IEB

PAGE 1 OF 2

EQ. Page No.	Equip. I. D. #	Generic Name	Accid. Profile	Qual. Profile	Radiation Qual. Statement		Qual. Method	Chem. Spray	Accur.	Subm.	Licensee Action		Outstanding Items Identified by	Category of Item
					Inside	Outside					Replace	Relocate		
2	NIB21 PT402	PT	✓	2	P	–	P	P	P	✓	–	–	R	2
3	NIB21 PT403	PT	✓	2	P	–	P	P	P	✓	–	–	R	2
4	NIB21 TE410	RTD	✓	P	P	–	P	P	P	✓	–	–	–	1
5	NIB21 TE413	RTD	✓	P	P	–	P	P	P	✓	–	–	–	1
6	NIB21 TE420	RTD	✓	P	P	–	P	P	P	✓	–	–	–	1
7	NIB21 TE423	RTD	✓	P	P	–	P	P	P	✓	–	–	–	1
8	NIB21 TE430	RTD	✓	P	P	–	P	P	P	✓	–	–	–	1
9	NIB21 TE433	RTD	✓	P	P	–	P	P	P	✓	–	–	–	1
10	11TB002	TB	✓	✓	✓	–	✓	✓	–	B	–	–	–	1
11	11TB003	TB	✓	✓	✓	–	✓	✓	–	B	–	–	–	1
12	11TB004	TB	✓	✓	✓	–	✓	✓	–	B	–	–	–	1
13	21TB001	TB	✓	✓	✓	–	✓	✓	–	B	–	–	–	1

NOTES:

b = Indicates the item is below the flood level
✓ or S = Indicates the item is Satisfactory
– or N = Indicates the item is Not Applicable
U = Indicates the item is Unresolved, Licensee Identified
P = Proprietary
L = Licensee Identified
R = Reviewer Identified
1 = Equipment to qualify
2 = Item to have true life of plant with licensee determining periodic replacement
3 = Equipment requires modification (resolution, shielding, etc.)
4 = Qualification of equipment unresolved
a) Testing schedule but not complete
b) Reviewer needs additional information
c) Qual. Record search still in process
5 = Equipment not qualified
6 = Item identified to EQB for resolution

REVIEW: [signature] DATE 11/5/80

-21-

0053460

According to this sheet, the terminal blocks identified by Mr. Merriweather are categorized as "1," "Equipment is qualified." These same terminal blocks are also an issue in this proceeding.

In February, 1981, Alabama Power Company received a Unit 1 "Equipment Evaluation Report by the Office of Nuclear Reactor Regulation, Equipment Qualification Branch." This report assessed 703 items of equipment and identified certain deficiencies associated with their qualification. Not surprisingly, many of the same items of electrical equipment that are the subject of this enforcement hearing, such as terminal blocks, Limitorque MOVs, the hydrogen recombiner, Joy Manufacturing fan motors, and GEMS level transmitters, were the subject of this Staff assessment. (APCo Exhibit 13). Then, on May 21, 1981, the Staff sent a Safety Evaluation Report in which the Staff concluded that the Farley Unit 1 Master List was "complete and acceptable." (APCo Exhibit 14). Clearly, the Staff was actively evaluating our submittals and documenting their assessment of our equipment qualifications and Alabama Power Company continued to respond accordingly.

For Unit 2, which was about to get its full power operating license in March, 1981, the Staff issued a Safety Evaluation Report which, in part, discussed environmental qualification

of safety related electrical equipment. (APCo Exhibit 15). This SER acknowledged that:

> The Staff evaluation of the licensee's response included an on site inspection of selected Class 1E equipment, an audit of environmental qualification documentation, and an examination of the licensee's report for completeness and acceptability. The criteria described in the DOR Guidelines and in NUREG-0588, in part, were used as a basis for the staff evaluation of the adequacy of the licensee's qualification program.

The SER discussed the on-site verification inspection of December 2-5, 1980, and concluded that in that inspection, "No deficiencies were noted."

Having assessed 661 items of equipment, the SER determined that Alabama Power Company's Master List was, "complete and acceptable" (except for certain items unrelated to this enforcement hearing). The Staff did determine that some items of safety related electrical equipment did not have adequate documentation to ensure that they were capable of withstanding the design basis accident but, nonetheless, concluded that, "There is reasonable assurance of continued safe operation of this facility pending completion of these corrective actions."

This SER is consistent with the oral report provided to the NRC at the March 11, 1981 discussion on the full power license

Farley, Unit 2. There, Mr. Vollmer, an NRC employee, told the Commission:

> We have reviewed the licensee's submittal in accordance with the equipment qualification guidelines. Basically we performed the same type of review that we have done for preceding plants and operating reactors.
>
> For the Farley Plant, based on this review, and an in-plant audit, we have concluded there are no outstanding items which require immediate corrective action to ensure safe operation of the plant. There are a number of items which are identified in the SER with which we could not make a specific conclusion regarding their acceptability because of, for example, deficiency in paperwork or because items such as the testing interval may not have met the guideline interval but yet one could make the argument that the need for the equipment fell within the envelope of the testing.

(Transcript of Nuclear Regulatory Commission meeting of March 11, 1981, In the Matter of: Discussion and Possible Vote on Full Power License for Farley, at p. 7-8.) Of course, the full power license for Unit 2 was issued by the Commission on March 31, 1981.

Thus, by the time Unit 2 received its full power license, a regulatory compliance pattern was being established: When the Staff issued a communication on equipment qualification, Alabama Power Company was quickly responsive. The Staff then evaluated the response, concluding that some equipment was qualified and identified deficiencies for others. The

challenge to Alabama Power Company, then, was to proceed to resolve the deficiencies.

Q9. Please continue with your discussion of the efforts undertaken by Alabama Power Company to comply with EQ requirements during 1981-1985.

A: (Jones) In our earlier testimony, we identified the Commission Order CLI-80-21 and its requirements. In late 1981, I was assigned to be the EQ Project Engineer for Farley Nuclear Plant, replacing another engineer who had been performing these responsibilities. Let me emphasize, however, that I was not the only Alabama Power Company engineer that worked on environmental qualification issues. I called upon the expertise of many Company engineers familiar with plant equipment and EQ requirements, as well as engineers at Bechtel, Southern Company Services, Inc. and Westinghouse. Moreover, in late 1981, Alabama Power Company hired an independent contractor to augment its staff and to assist in the EQ effort. This engineer, Mr. Mike Lalor of United Energy Services, had experience with environmental qualification while stationed at the Browns Ferry Nuclear Plant. He was selected for his ability to step in and assist us with our EQ compliance program.

Q10. Please describe the process you used to establish qualification for a particular item of electrical equipment.

A: (Jones) As a result of Alabama Power Company's compliance with Bulletin 79-01B, we had a Master List of electrical equipment subject to environmental qualification. Our typical qualification process involved reviewing the supporting documentation in the files for a given item. In many cases, this documentation was sent to us by the vendor, usually in the form of a test report. This information was then sent to either Bechtel or Southern Company Services, Inc. for technical analysis and review. Typically, numerous telephone conversations and, on frequent occasions, meetings, occurred with the reviewers to resolve any questions relating to its sufficiency. Then, a documentation package would be returned to us with the designer's documented approval. A typical documentation package would include the following: 1) any test reports or other documentation relied upon by Bechtel or Southern Company Services, Inc.; 2) a report evaluation checklist, which documented the complete evaluation of the test reports; and 3) a System Component Evaluation Worksheet (SCEW sheet), which summarized the evaluation contained in the checklist. Mr. Lalor and I would again review the package to satisfy ourselves that it was acceptable. We would then send the documentation package and a cover letter through my

management for concurrence before it was transmitted to the Plant.

Q11. Who at the Plant received the documentation packages?

A: These packages were sent to the Systems Performance Manager, Mr. Robert Berryhill, who will testify about his review process.

Q12. Mr. Jones, please continue with your description of Alabama Power Company's EQ compliance efforts after you were assigned the EQ project engineer responsibilities.

A: (Jones) In early 1982, the Staff requested Alabama Power Company to submit to Franklin Research Center certain test reports that we were using to establish qualification for the items of electrical equipment on the Master List. We understand that the NRC had contracted with Franklin to perform a review of many licensees' qualification documentation files to determine whether adequate test reports existed to support qualification of the identified equipment. As Mr. Shemanski explained in his deposition:

> However, Franklin Research Center did essentially the entire review. Again, the staff simply did not have the resources to review documentation submitted by, at that

> point in time, 52 licensees representing 71 operating reactors.
>
> . . .
>
> [T]he information was sent from the licensees to the staff, then to the staff -- from the staff to Franklin Research Center. Occasionally we did look to see what type of information was being submitted by the licensees, but, again, the staff did not do an indepth review, that was left to Franklin. However, we did work very closely with Franklin and had constant contact with Franklin.

Shemanski Deposition, at p. 19.

At the conclusion of Franklin's review, it issued a Technical Evaluation Report (TER) for each operating unit, which categorized each item of electrical equipment on the Master List as being qualified, unqualified, or as having deficient qualification documentation. (APCo Exhibits 16 and 17). In the Farley Nuclear Plant TER for Unit 2, Franklin stated that it presented to the Staff a detailed evaluation of:

> (1) the Licensee's qualification methodology, (2) the equipment environmental qualification of each equipment item, and (3) the Licensee's response to the NRC SER . . . .

Franklin TER for Unit 2, at page 5-1.

The TERs were submitted to the Staff who, in turn, transmitted them in February, 1983, to Alabama Power Company as an attachment to a Safety Evaluation Report for each unit.

(APCo Exhibits 18 and 19). In each Alabama Power Company SER, the Staff stated: "We have reviewed the evaluation performed by our consultant contained in the enclosed Technical Evaluation Report (TER) and concur with its bases and findings."

After receiving the SERs and attached TERs, Alabama Power Company began a diligent effort to resolve each deficiency identified by Franklin. This effort began in February, 1983 and culminated in a January 11, 1984 meeting with the Staff. Also during this time, Alabama Power Company developed an EQ Administrative Program, ETP-4108, which will be described by Mr. Berryhill.

Q13. What is the significance of the January 11, 1984 meeting?

A: As earlier noted, using the Franklin TERs as guides, Alabama Power Company worked diligently to resolve the identified equipment deficiencies. In January, 1984, at an all-day meeting in Washington, D.C., Alabama Power Company presented to the Staff its resolution of each deficiency identified in the Franklin TERs. As part of this presentation, numerous test reports and other documentation supporting qualification was discussed. We also addressed generic environmental qualification issues raised by the Staff.

Q14. Were any items of electrical equipment relevant to this proceeding discussed at the January 11, 1984 meeting?

A: Yes, all of the Franklin-identified deficiencies were discussed. In fact, two items pertinent here, terminal blocks and Limitorque MOVs, were discussed at great length with the Staff at this meeting. The Staff expressed qualification concerns about these two items and Alabama Power Company explained its proposed resolution. This discussion and the Staff's acceptance of these resolutions were later documented in a letter sent to the Staff dated February 29, 1984. (APCo Exhibit 20).

Q15. Did the Staff agree with Alabama Power Company's resolution of deficiencies identified in the Franklin TERs?

A: Yes. It was our impression at the meeting that the Staff agreed that Alabama Power Company had either resolved each of the deficiencies or that the plan presented for resolving deficiencies was acceptable. As noted, and at the Staff's request, Alabama Power Company sent a letter dated February 29, 1984, which summarized and documented Alabama Power Company's presentation and resolutions. The letter states: "On January 11, 1984, a meeting was held with members of the NRC Staff to discuss [Alabama Power Company's] responses <u>that resolved each identified deficiency</u>." (emphasis added).

(APCo Exhibit 20). In that letter, Alabama Power Company also requested that the Staff issue a final Safety Evaluation Report documenting its agreement with Alabama Power Company to these resolutions and its compliance with 10 CFR 50.49.

Q16. Please describe the Staff's final SER discussing Alabama Power Company's compliance with 10 CFR 50.49.

A: By letter dated December 13, 1984, the Staff transmitted the SERs to Alabama Power Company for Farley Nuclear Plant, Unit 1 and Unit 2. (APCo Exhibit 21). That transmittal letter referenced many of the same documents we have been discussing in our testimony. For example, the letter referenced the earlier Safety Evaluation Reports issued on January 31, 1983, and the Franklin Research Center Technical Evaluation Reports, which identified the deficiencies that Alabama Power Company had resolved. The letter went on to discuss the January 11, 1984 meeting and our letter, dated February 29, 1984, which documented the discussions held at the earlier meeting. As for the SERs, they provided an historical perspective of the evolving equipment qualification process. Importantly, the Unit 1 SER acknowledged that "equipment for Farley Unit 1 may be qualified to the criteria specified in either the DOR Guidelines or NUREG-0588, except for replacement equipment." This, of course, is consistent with our earlier testimony and

our EQ efforts. The Unit 2 SER made a similar acknowledgement.

Like the transmittal letter, the SERs recognized that a meeting was held with Alabama Power Company "in order to discuss all remaining open issues regarding environmental qualification, including acceptability of the environmental conditions for equipment qualification purposes . . . ."

Under the evaluation section of the SERs, the Staff recognized that there had been an audit review performed by the Staff. Of course, the SERs also indicated that the regulatory process would continue since a "follow-up inspection" would later be performed even though, "a significant amount of documentation [had] already been reviewed by the staff and Franklin Research Center . . . ."

The SER then approved Alabama Power Company's approach for identifying equipment within the scope of 10 CFR 50.49.

The SER concluded:

> Alabama Power's electrical equipment environmental qualification program complies with the requirements of 10 CFR 50.49.
>
> The proposed resolutions for each of the environmental qualification deficiencies identified in the January 31, 1983 SER and FRC TER are acceptable.

Continued operation will not present undue risk to the public health and safety.

Q17. What was the significance of this SER to Alabama Power Company?

A: The Staff's conclusion that Alabama Power Company was in compliance with the EQ regulations meant that Alabama Power Company had met the November 30, 1985 deadline for achieving compliance with 10 CFR 50.49. Alabama Power Company did not read these SERs as having been issued in a vacuum and we knew that the work leading up to this issuance had encompassed many, many, engineering hours of study and review by both the Staff and the Company. Thus, the Company believed that the Staff reached this conclusion "based on [Staff] reviews" of our responses to the various EQ circulars, bulletins and other communications outlined previously in our testimony. The Company also believed that the Staff considered its 1980 physical inspection of the EQ equipment at the plant, its prior SERs approving Alabama Power Company's detailed Master List, the Franklin TERs, our resolution to each Franklin deficiency discussed at the January 11, 1984 meeting, the numerous other submittals made to the Staff, and the many responses to Staff inquiries. Since the Staff knew of the long history of Alabama Power Company's efforts to achieve compliance, the Company believed that the Staff relied on this

record in determining that Farley Nuclear Plant was in compliance with 10 CFR 50.49.

Prior to the issuance of these SERs, Alabama Power Company knew that it complied with the Staff EQ regulations and its goal was to convince the Staff of this compliance. This goal was clearly accomplished when the Staff issued the December 13, 1984 SERs.

Furthermore, achievement of this goal was not limited to a mere approval of a methodology for complying with 10 CFR 50.49. The conclusion at the end of each safety evaluation (at page 9) is that "Alabama Power Company's electrical equipment environmental qualification program complies with the requirements of 10 C.F.R. 50.49." Alabama Power Company understood this statement to mean that it complied with all of 10 CFR 50.49, which essentially has three requirements pertinent here: 1) identification of equipment required to be qualified; 2) qualification of this equipment; and 3) documentation of this qualification. By December 13, 1984, each of these requirements had been accomplished to the satisfaction of the Staff as evidenced by 1) the Staff's 1981 SER stating that our Master List was "complete and acceptable," 2) the Franklin review of each item on the Master List, which identified certain documentation deficiencies, and 3) the Staff's January 11, 1984 acceptance of our resolution

of these identified deficiencies. Because of this record of Staff review and acceptance, Alabama Power Company knew the Staff had looked at much more than just its "methodology" for complying with EQ. The Staff had looked at and evaluated every aspect of our compliance. With this compliance history in mind, Alabama Power Company received the December 13, 1984 SERs as the formal acknowledgement that it complied with the EQ rule. As noted by Mr. Shemanski, the "focus of these SERs was to have the licensee show compliance with 50.49." Shemanski Deposition at 26. Our best efforts to achieve compliance had been evaluated, acknowledged and accepted by the Staff.

Q18. Notwithstanding the SERs, did Alabama Power Company understand that it would still be subject to a follow-up inspection for EQ compliance?

A: Of course it did; that is part of the normal regulatory process that every licensee must expect, and Alabama Power Company accepts this fact of life without complaint. However, this enforcement proceeding is governed by the Modified Enforcement Policy, which creates a "clearly knew or should have known" standard. We understand that this standard must be met before the Staff can assess any civil penalty against a licensee. The significance to Alabama Power Company of the December 13, 1984 SERs is that, as of that date, Alabama Power

Company had reasonable assurance to conclude that it complied with the EQ regulations and that there were no deficiencies that it "clearly should know" were still unresolved. As Mr. Shemanski acknowledged:

> Q: As of the day the licensee receives an SER and the SER references the TER and in the TER Franklin has reviewed a specific component and says the documentation is sufficient because the following key attributes required by 50.49 have been addressed . . . the licensee . . . has a basis to assume, subject to later new information or whatever, that it has documented and analyzed what it needs to do with respect to that piece of equipment to meet 50.49.
>
> A: Yes. The licensee can certainly make that assumption.
>
> Q: And it is fair to say that that's in good faith reliance in a sense?
>
> A: Yes.

Shemanski Deposition at p. 63-64.

Q19. After receiving the December 13, 1984 SER, did Alabama Power Company transmit to the Staff a letter certifying that Farley Nuclear Plant was in compliance with the EQ rule?

A: Yes. On December 27, 1984, the Staff issued Generic Letter 84-24, which required licensees to submit a letter certifying, among other things, that each licensee, 1) had in place and was implementing an EQ program that satisfied the requirements of 10 CFR 50.49, and 2) all other equipment requiring

qualification was either fully qualified or a justification for continued operation had been submitted to the Staff. Alabama Power Company submitted such a letter on January 28, 1985. (APCo Exhibit 22).

In this certification letter, Alabama Power Company said, "Alabama Power Company has an Environmental Qualification Program in place that satisfies the requirements of 10 CFR 50.49 as stated in the NRC Safety Evaluations dated December 13, 1984." Alabama Power Company also certified that "[a]ll of the equipment identified in the Master Lists have been environmentally qualified and, as a result, a justification for continued operation with unqualified equipment is not required."

Alabama Power Company had two primary bases for making this certification. First, it believed that it complied with the EQ rule. Second, and more importantly, the Staff, in the December 13, 1984 Safety Evaluation Reports, had ratified Alabama Power Company's belief. The certification letter referenced the SERs as authority for Alabama Power Company's position that it complied with 10 CFR 50.49. By not rejecting the certification letter, and its stated bases, the Staff, once again, albeit tacitly, reassured Alabama Power Company that it had met the EQ requirements by the November 30, 1985 deadline.

Q20. After the issuance of the December, 1984 SERs, what did Alabama Power Company do to ensure continued compliance with 10 CFR 50.49?

A: As Mr. Robert Berryhill will testify, Alabama Power Company developed an EQ Administrative Program in 1983 that established procedures for maintenance and procurement of qualified equipment. As Mr. Berryhill will testify, this program was integrated into our total plant operations so that each group was responsible to assure that EQ compliance was maintained.

EQ ACTIVITIES AT THE PLANT IN 1987

Q21. Before describing the activities surrounding the EQ inspection at the plant in 1987, please summarize the EQ efforts Alabama Power Company undertook after the SERs but before the inspection.

A: (Jones) As previously noted, Alabama Power Company prepared and promulgated an EQ Administrative Program to ensure that it would remain in compliance with EQ requirements. Moreover, I kept my responsibilities as EQ Project Engineer and addressed EQ issues as they arose. Alabama Power Company attended meetings of the Nuclear Utility Group for Equipment Qualification (we became a full member in January, 1987). As

will be more fully explained by Mr. Shipman, who was the Assistant Plant Manager in 1987, Alabama Power Company organized an EQ Task Team to review the various components of the Farley Nuclear Plant EQ program. I was a member of the Task Team and was responsible for the review of the EQ documentation files.

In the summer of 1987, Alabama Power Company employed Mr. Philip DiBenedetto to review the qualification packages and provide it with the benefit of his experience at other facilities and overall knowledge of the most current Staff expectations.

Q22. When did the Staff conduct an environmental qualification inspection at Farley Nuclear Plant?

A: (Jones) Alabama Power Company's position is that the Staff began its EQ inspection at Farley Nuclear Plant in September, 1987, and concluded it in November, 1987. This is particularly important to Alabama Power Company because, despite its belief that it complied with the EQ rule, during the inspection, Alabama Power Company was able to develop sufficient data which should have satisfied the inspectors that even the evolving standards had been met. Thus, it is the position of Alabama Power Company that for purposes of the enforcement process, credit should be given for all

documentation in the qualification files at the conclusion of the inspection in November, 1987.

During the inspection, I was actively involved at the Plant in providing the inspectors with whatever documentation they requested and responding to their questions. I developed the "EQ Inspection Tracking Sheet," which was used to document the inspectors' questions and generally assisted in an orderly process whereby an inspector's concern could be addressed and, hopefully, resolved. Nonetheless, due to the time constraints of the inspection, some of the questions raised by the inspectors were addressed through oral presentations. For example, on an instrument accuracy issue, Alabama Power Company had a team of Westinghouse engineers flown down from Pittsburgh to address an inspector's concerns. Moreover, on another occasion, Alabama Power Company made an oral presentation to certain inspectors on Okico A/Raychem seals. Though these presentations were not always documented on a Tracking Sheet, a considerable amount of time and effort was spent addressing these issues. In his testimony, Mr. Richard C. Wilson complains, at pages 25-26, that, "[I]nformation was very slow in coming from the licensee during this inspection in the areas of solenoid valve qualification and instrument accuracy." Based on my personal knowledge, I can assure the Board that this was not so. I know of no inspector concern that was not expeditiously investigated and addressed by the

responsible people at Farley Nuclear Plant during the EQ inspection.

Q23. Do you intend to sponsor additional testimony on the various technical issues raised in this proceeding?

A: (Jones) Yes; on occasion, I will provide testimony on various technical issues. This will appear in my panel testimony with Mr. Jesse Love and Mr. Jim Sundergill of Bechtel. I will also provide a few items of testimony in the topics covered by Mr. Berryhill and Mr. Shipman.

CONCLUDING REMARKS

Q24. Do you believe that the Staff's imposition of a $450,000 civil penalty for the alleged violations of the EQ rule at Farley Nuclear Plant is justified?

A: We believe that the civil penalty levied against Alabama Power Company by the Staff is completely unwarranted based upon our record of responsiveness to the Staff's EQ communications from 1978-1985 and the frequent acknowledgement by the Staff that it had evaluated and accepted Alabama Power Company's technical positions. Throughout the pre-deadline time frame, Alabama Power Company expended many manhours of engineering time, dollars, and associated resources to comply with the

evolving EQ requirements. At frequent milestones, it received acknowledgement by the Staff of its efforts in the form of Technical Evaluation Reports, Safety Evaluation Reports, an operating license and a final declaration that it was in compliance. We know of no evidence that would support the Staff's position that Alabama Power Company had a "programmatic breakdown" of its EQ compliance efforts or that it "clearly should have known about the EQ violations prior to November 30, 1985 ...." We believe that the only way the Staff reached such a conclusion was to impute to Alabama Power Company the Staff's post-deadline knowledge regarding equipment qualification and then simultaneously to ignore its own communications, evaluations and formally promulgated safety evaluation reports -- which, coincidentally, is a fact never dealt with in their pre-filed testimony. Because the Staff has failed to prove their case and because they created and, thus, should be bound by the Modified Enforcement Policy, we do not believe that a civil penalty can be sustained.

Q25. Does this conclude your testimony?

A: Yes it does.

Berryhill

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	Docket Nos. 50-348-CivP
ALABAMA POWER COMPANY	)	50-364-CivP
	)	
(Joseph M. Farley Nuclear Plant, Units 1 and 2)	)	ASLBP No. 91-626-02-CivP

TESTIMONY OF ROBERT BERRYHILL
ON BEHALF OF ALABAMA POWER COMPANY

Q1. Please state your name and your current employment position.

A: My name is Robert Berryhill. I am the Manager of Advanced Reactor Projects for Southern Nuclear Operating Company, Inc.; however, I have been assigned temporarily to work with the Electric Power Research Institute in Palo Alto, California with their advanced light water reactor group.

Q2. Please describe your educational background.

A: I hold an undergraduate degree from Auburn University in Mechanical Engineering and a Masters degree in Nuclear Engineering from the Georgia Institute of Technology. I also have a Senior Reactor Operator's License for Farley Nuclear Plant, Unit 1.

Q3. Please describe your employment history after graduating from Auburn University.

A: After graduating from Auburn, I spent five years in the Army as an aviator before joining Alabama Power Company at the Barry Steam Plant as a plant engineer. Alabama Power Company then sent me to Georgia Tech for my Masters degree and to Westinghouse for training at their Zion, Illinois facility. Once I returned to Alabama Power Company, I was assigned to Farley Nuclear Plant as a technical supervisor. In 1980, I was promoted to Systems Performance Manager at Farley Nuclear Plant and held this position until I was assigned to my current position with the Electric Power Research Institute in March of 1991.

Q4. What is the purpose of your testimony?

A: The purpose of my testimony is to provide additional evidence that Alabama Power Company made its best efforts to comply with EQ requirements by the deadline, and also had a program in place to maintain this compliance. I will explain the work done to draft and implement ETP-4108, which was an administrative program used by Farley Nuclear Plant to maintain EQ compliance.

Q5. In 1983, was the Systems Performance Group asked to prepare a procedure for integrating the environmental qualification requirements of 10 CFR 50.49 into the Farley Nuclear Plant operations?

A: Yes. In 1983, we were asked to prepare a written procedure outlining the Plant staff's areas of responsibilities pertaining to environmental qualification and to integrate these responsibilities into the total Plant operations. This written procedure took the form of an engineering technical procedure and was assigned the number ETP 4108. (APCo Exhibit 23).

Q6. Please describe what the Systems Performance Group did to prepare ETP 4108.

A: Initially, the Licensing group in Birmingham suggested that the Plant develop and implement a procedure for ensuring continued compliance with the Commission's EQ requirements. The purpose of this effort was to formalize the existing Plant EQ activities into an official plant procedure. The Licensing group wanted to ensure that the Plant properly maintained the qualified status of the electrical equipment throughout the life of the Plant. To assist the Plant in our efforts to develop a procedure that would accomplish these goals, the Licensing group developed the Environmental

Qualification Administrative Program, which contained an overview of the elements considered to be essential in any such procedure. Once we received this EQ Administrative Program at the Plant, we discussed it at length with Mr. Mike Lalor, the principal author of the EQ Administrative Program, and Mr. David Jones, both of whom were in the Farley Nuclear Plant support group. We also discussed this program with the various groups at the Plant who, under the Administrative Program, would incorporate this EQ procedure into their respective organizational procedures.

After these discussions and a careful review of the Environmental Qualification Administrative Program, the Systems Performance Group established a procedure, ETP 4108, that described the process by which the Plant would continue its compliance with the Commission's regulations. Essentially, ETP 4108 followed the EQ Administrative Program with only slight modifications.

Q7. Why was there no specific group formed at Farley Nuclear Plant to ensure that environmental qualification was maintained?

A. At Farley Nuclear Plant, our philosophy for implementing programs such as EQ is to incorporate the program into our overall Plant operations. We have taken this approach with other programs such as the fire protection requirements of 10

CFR 50.48 and Appendix R. Under this approach, maintenance of EQ components is assigned to the existing Plant maintenance organization, and EQ equipment procurement is assigned to the existing Plant procurement organization for inclusion in their respective everyday procedures. Similarly each discrete aspect of ETP 4108 is assigned to the organization normally assigned such responsibilities at the Plant. In this manner, the responsibility of implementing the EQ requirements is dispersed throughout the various Plant organizations so that EQ compliance permeates the entire Plant operations.

Q8. Please explain the EQ procedure described in ETP 4108.

A: As mentioned, ETP 4108 essentially identifies each element of the Farley Nuclear Plant EQ program and assigns to a particular group at the Plant the responsibility for implementing that element. These elements basically include procurement, maintenance, operational services, surveillance, design and replacement of qualified equipment. Under ETP 4108, a copy of all the necessary documentation supporting qualification is required to be maintained at the Plant. The EQ procedure called for the following documentation to be included in the qualification files: 1) the Master List identifying all equipment requiring qualification, 2) a list of all EQ test report documents, 3) a component maintenance and replacement schedule, 4) specifications for preventive

maintenance activities, 5) a copy of the actual EQ test reports and supporting documentation, and 6) EQ surveillance records.

ETP 4108 also identifies various documents necessary to implement the procurement, maintenance, operational services, surveillance, design and replacement aspects of the EQ procedure. These documents include: 1) maintenance documents and descriptions relating to recommendations/requirements, generic descriptions of the component, the Farley Nuclear Plant Total Plant Numbering System number for each component, as well as its manufacturer and model number; 2) plant procedures and schedules for implementing the maintenance tasks; and, 3) a justification for elimination or revision of maintenance recommendations/requirements.

Moreover, ETP 4108 assigned to the Farley Nuclear Plant support group in Birmingham primary responsibility for coordinating the complete review of the EQ files to verify that the existing documentation was adequate to support EQ qualification. The qualification packages were transmitted to the Plant for inclusion in the central file. The EQ procedure also identified and explained in detail how EQ maintenance, surveillances, schedules and controls would be accomplished. Our intent was to provide to the responsible Plant groups a

process that, if followed, would ensure continued compliance with 10 CFR 50.49.

Q9. What responsibilities did ETP 4108 assign to you as Systems Performance Manager at Farley Nuclear Plant?

A: As Systems Performance Manager, I had responsibility for ensuring that all maintenance work was performed properly. My group was not responsible for actually performing the maintenance work, but reviewed and established the procedure for maintenance workers to follow when installing or replacing equipment throughout the Plant. The purpose for establishing this detailed maintenance procedure was to ensure that a maintenance activity did not change the Plant's conformance to design specifications.

Through ETP 4108, my group was assigned responsibility for monitoring the maintenance of all EQ equipment as well. This maintenance responsibility included coordination of Plant Staff EQ Program activities to assure that program requirements for installation configuration, maintenance, replacement, inspection, surveillance, administrative control, evaluation, and documentation were sufficiently addressed in plant procedures and schedules. All of these activities were designed to assure that components listed on our Staff-

approved Master List of Environmental Qualified Equipment maintained their environmental qualification.

Q10. As Systems Performance Manager, did you have any responsibility for the maintenance programs related to lubricants?

A: Yes. However, this was not a maintenance function under EQ since lubricants are not items of electrical equipment requiring qualification. As I have mentioned, as Systems Performance Manager, I had responsibility for a wide range of maintenance activities, with EQ being a subset of this overall responsibility. While I did have maintenance responsibility for lubricants, this responsibility was not assigned to me through ETP 4108. As a maintenance matter, we did routinely assure that any greases or lubricants used in equipment was proper for its application.

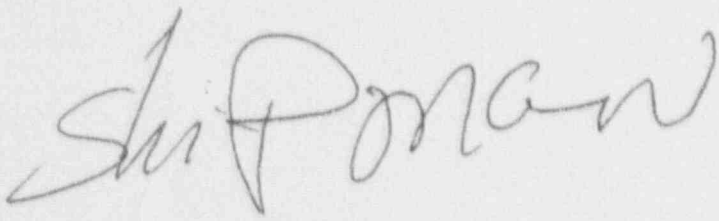
Q11. Did you have any responsibilities at the Plant for maintaining the necessary documentation to support qualification for the items of electrical equipment contained on the Master List?

A: Yes. However, I had no general responsibility for developing this documentation or judging the technical adequacy of it. The test reports and documentation supporting qualification were generally developed through the efforts of Mr. David

Jones and the Farley Nuclear Plant support group in Birmingham. This documentation would be reviewed by the engineers at Bechtel or Southern Company Services, Inc. to ensure that the documentation, from a technical standpoint, supported the conclusion that an item of electrical equipment would perform its intended function in the Plant's design basis accident and was therefore environmentally qualified. This documentation would then be sent by Bechtel or Southern Company Services, Inc. to Mr. Jones, who would review the documentation to ensure that it properly established qualification. Mr. Jones would then send the documentation to the Plant where my group would review it. The documentation would then be indexed and placed in a file in the document control center for reference and use.

Q12. Does this conclude your testimony?

A: Yes it does.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	Docket Nos. 50-348-CivP
ALABAMA POWER COMPANY	)	50-364-CivP
	)	
(Joseph M. Farley Nuclear Plant, Units 1 and 2)	)	ASLBP No. 91-626-02-CivP

TESTIMONY OF WILLIAM B. SHIPMAN
ON BEHALF OF ALABAMA POWER COMPANY

Q1. Please state your name and your current employment position.

A: My name is William B. Shipman. I am currently employed by Georgia Power Company as General Plant Manager for the Vogtle Electric Generating Plant, a two-unit Westinghouse PWR located near Waynesboro, Georgia.

Q2. Please describe your educational background.

A: I have a Bachelor of Science degree in Electrical Engineering from Auburn University. From January, 1988 until spring, 1989, I held a Senior Reactor Operator's License for Units 1 and 2 of the Joseph M. Farley Nuclear Plant.

Q3. Please describe your employment history prior to joining Georgia Power Company.

A: After graduating from Auburn University in 1959, I worked in the aerospace industry for various companies including Boeing and McDonnell-Douglas. I also worked for Vitro Services, Inc. as a technical support contractor at the Marshall Space Flight Center in Huntsville, Alabama. In 1971, I joined Alabama Power Company as an Instrument Foreman at Farley Nuclear Plant. As part of my training I was temporarily assigned to be a Start-up Engineer at the Gorgas Steam Plant. I was then sent by the Company to the Westinghouse Instrument and Control training facility in Baltimore, Maryland and from there to the Nuclear Operations training facility at Zion, Illinois. I then returned to Farley Nuclear Plant to become the Start-up Supervisor for the Plant. I was later promoted to Start-up Manager for Farley Units 1 and 2, a position I had until 1978. In 1978, I became the Maintenance Manager in the Operating Department at the Plant and remained in that job until 1985 when I became the Assistant-Plant Manager for Support. Then in early-summer 1988, I became Assistant-Plant Manager for Plant Operations. In October, 1988, I transferred to Georgia Power Company to be the General Manager for Plant Support for Plant Vogtle and remained in that position until October, 1990. Since October, 1990, I have been General Plant Manager at Plant Vogtle.

Q4. What is the purpose of your testimony?

A: The purpose of my testimony is to describe for the Board the EQ Task Team which was created by Alabama Power Company in 1987 to confirm that the Company had maintained compliance with the NRC's EQ requirements. I will also describe the discovery by Alabama Power Company of the V-type taped splice concern of the Staff and the resolution of tnat issue.

Q5. From 1978 through 1985 while you were the Maintenance Manager at Farley Nuclear Plant, did you have any responsibilities related to the environmental qualification of electrical equipment?

A: Yes. As the Maintenance Manager at Farley Nuclear Plant, I was responsible for maintaining the qualified electrical equipment in its proper configuration. I did not participate, however, in the determination of whether a particular item of electrical equipment was qualified to the Commission's regulations.

Q6. During summer, 1987, were you asked to participate in an effort to review Farley Nuclear Plant's EQ program?

A: Yes. In summer, 1987, the Plant Manager, Jack Woodard, asked that I assemble and lead a task team to conduct a thorough

review of the EQ program at Farley Nuclear Plant. This effort was undertaken because, during a routine Vendor Technical Interface Program Inspection (VETIP) in the spring of 1987, NRC inspectors at the Plant made several comments indicating that Farley Nuclear Plant would have difficulty passing its upcoming first-round EQ inspection. Alabama Power Company knew that the Staff was in the process of conducting these first-round EQ inspections and it wanted to be prepared when the inspectors came to the Plant.

Q7. How did Alabama Power Company learn of the Staff's concern regarding V-type taped splices?

A: Shortly after the VETIP inspection, Alabama Power Company learned that what it considered to be a "termination," was considered by the current NRC inspectors and enforcement Staff to be a "splice." Alabama Power Company previously had considered a "splice" to be a joining of multiple lengths of field cables to form a continuous length. This is the definition used in The Lineman's and Cableman's Handbook, Sixth Edition. (APCo Exhibit 24). Splices are useful if cable has been damaged, broken, or if a cable is too short. At Farley Nuclear Plant, Alabama Power Company policy prohibited the use of splices to join two ends of field cable together, except in specific designer-approved circumstances. Instead, the Plant policy required that the entire electrical

cable be re-pulled so there would be a continuous and uninterrupted line of cable. In fact, I recall the splice log at the Plant only recorded one splice, and it was not subject to the design basis harsh environment. Hence, Alabama Power Company believed that the only "splices" at Farley Nuclear Plant were not within the scope of EQ. Farley Nuclear Plant did, however, have many "terminations" which Alabama Power Company considered to be the connection of a field cable to an electrical component.

Alabama Power Company is a member of the Institute of Nuclear Power Operators and from it, received various Staff inspection reports to review for general applicability to Farley Nuclear Plant. In the early summer of 1987, through a review of the EQ inspection report at Calvert Cliffs Nuclear Power Station, Alabama Power Company learned of the Staff concern about the qualification of V-type taped splice/terminations. The review of the Calvert Cliffs inspection report revealed that the Staff now considered "a wrap-around tape splice" in a pig-tail lead termination, to be subject to EQ qualification. This was new information to Alabama Power Company. The Staff had never informed the Company that concerns existed about these kinds of taped slices/terminations despite many opportunities to do so. For example, in late fall of 1980, the Staff conducted an inspection at the Plant of certain equipment subject to IEB 79-01B and NUREG-0588 (APCo Exhibit 11). During this

inspection, the inspector looked at several installed electrical components such as fan motors inside containment, and the hydrogen recombiner, as well as their interfaces. These interfaces included V-type taped terminations. No concern about these V-type tape splices/terminations was raised by the inspector; all his report says is, "No deficiencies were noted."

Q8. Why did Alabama Power Company consider its V-type taped slices/terminations to be environmentally qualified prior to the review of the Calvert Cliffs report?

A: Alabama Power Company had specific Electrical Notes and Details for the Plant describing how to terminate field cable to electrical components. Prior to 1987, we did not focus on minor configuration deviations. We considered installed electrical terminations to be consistent with the Electrical Notes and Details, which contained a termination detail that would provide insulation resistance sufficient to prevent the electrical cable from grounding or shorting. During construction, these terminations were made by trained, qualified workers, who used the skill of the craft. The terminations were reviewed by the QC department pursuant to an NRC-approved QC program. Any change-outs after commercial operation were performed by the trained, qualified maintenance department electricians. By this process, Alabama Power

Company had reasonable assurance that installed taped terminations would provide the required insulation function identified in the Electrical Notes and Details. The Company also had an Okonite test report (APCo Exhibit 25) that qualified the materials used to make these terminations. Accordingly, Alabama Power Company reasonably believed that these terminations were qualified to the EQ requirements.

Q9. After learning of the Staff's concern, what did Alabama Power Company do?

A: When Alabama Power Company learned in 1987 of the Staff's concern about V-type taped splices, it immediately performed an inspection to determine the degree to which the splices were being used at Farley Nuclear Plant. This inspection determined that if these terminations were indeed "splices," then a documentation problem might exist. Let me stress, however, that at no time did Alabama Power Company consider that the public health and safety was jeopardized, or even that the terminations were not operable or qualifiable.

Alabama Power Company notified the Staff of this finding through a voluntary Licensee Event Report (LER) (APCo Exhibit 26). The Company then sought to confirm the qualification of these V-type taped splices by sending a variety of them which had been removed from the plant to Wyle Laboratories. Wyle

was to dissect these splices, determine their make-up (e.g., type of tape and number of wraps), and with this knowledge, fabricate representative test specimens. Some plant personnel were also made available to Wyle to ensure that the tested specimens duplicated those found at the Plant. The Wyle test report was issued on October 8, 1987 and it concluded that these splice/terminations were environmentally qualified. (APCo Exhibit 27). Thus, prior to the November, 1987 EQ inspection, Alabama Power Company had the results of this testing in its qualification files, establishing that the V-type taped splice configurations would perform their intended function in the environment created by a design basis accident at Farley Nuclear Plant.

The technical details of this issue will be further explained by Mr. Love in his testimony.

Q10. The Staff has alleged that Alabama Power Company "took the less conservative approach" in resolving the V-type splice concern, because for fan motors, it did not issue a justification for continued operation and immediately declare all remaining fan motors inoperable. Do you agree with this statement?

A: No. Contrary to the Staff's contention, Alabama Power Company's actions were consistent with the guidance set forth in the Staff's Generic Letter 86-15. This guidance states:

> When a licensee discovers a potential deficiency in the environmental qualification of equipment (i.e., a licensee does not have an adequate basis to establish qualification), the licensee shall make a prompt determination of operability, shall take immediate steps to establish a plan with a reasonable schedule to correct the deficiency, and shall have written justification for continued operation. This justification does not require NRC review and approval.

(APCo Exhibit 28). As Mr. Love will explain, upon identification of this issue, we had made a prompt determination of operability. Subsequently, on August 4, 1987, Alabama Power Company initiated an evaluation of ten fan motors inside containment for each unit. Alabama Power Company began to develop a justification for continued operation (JCO), and, at the same time, began an inspection of each fan motor. Any splice configuration that was determined to be a deviation from the design was replaced with a Raychem splice. Alabama Power Company considered its prompt inspection and replacement decision to be a more conservative approach than waiting for the completion of a JCO, which would have taken longer. The Company utilized multiple inspection/replacement teams on each shift to expedite the schedule and to minimize personnel radiation exposure and heat stress. Additionally, only one component was taken out of service at a time to minimize the collective number of safety

systems simultaneously out of service. All ten fan motors on each unit were placed in a conservative and appropriate design configuration by August 22, 1987, thereby going beyond the Generic Letter recommendation that licensees "take immediate steps to establish a plan with a reasonable schedule to correct the deficiency." Through this effort, Alabama Power Company determined that the replacement work could be completed prior to the completion of the JCO and, accordingly, efforts on the JCO were stopped. Region II Staff questioned Alabama Power Company about this approach but never issued a directive to do otherwise.

Q11. In their written testimony on general enforcement issues, at page 16, the Staff now takes the new position that Alabama Power Company did not comply with the Unit 2 Technical Specifications regarding V-type taped splices in containment fan motors. Do you agree with this?

A. No. This new allegation is completely unfounded. The Technical Specifications surveillance requirements for those fan motors were satisfied in each case, and at no time was there was a violation of the Technical Specifications' operability requirements for these motors. (Importantly, at no time has the Staff previously cited a Technical Specification violation related to this matter.) As noted, Alabama Power Company's decision was based on three factors:

(1) engineering judgment that the tape splice would perform its intended function, (2) knowledge that leakage current was not an issue since this was a power circuit, and not an instrument circuit, and (3) knowledge that the Technical Specification surveillance requirements had been satisfied. This meant that the required prompt operability determination had been made.

Q17. You have testified that as a result of the Staff inspectors' comments during the VETIP inspection and as a result of the Calvert Cliffs report, Alabama Power Company established an EQ Task Team to review the EQ program at Farley Nuclear Plant. Please describe the various components of this EQ Task Team.

A: This Task Team was comprised of nine discrete sub-groups. Each sub-group leader was assigned a staff of engineers. These sub-groups were to re-evaluate the various aspects of Alabama Power Company's EQ program and were to perform certain action items including: 1) re-review of the auditability of the EQ files, 2) re-review of the maintenance activities, including preventive and corrective measures of the maintenance program, 3) perform any necessary EQ electrical equipment walkdowns in the containment area, the auxiliary building and in the main steam valve room, 4) re-review program document development, 5) re-review the correlation of purchase orders, the Master List and the installed equipment,

6) review past maintenance activities for effect on EQ certification, 7) review procurement, dedication and storage activities, 8) review storeroom spare parts to assure that they were properly procured, and 9) review EQ training practices. The Task Team began its efforts in the latter part of the summer of 1987 and continued to work throughout that fall completing the last inspections during the Unit 2 outage in the spring of 1988.

Q13. What did the EQ Task Team do during the Staff's EQ inspection of Farley Nuclear Plant?

A: While the inspectors were on-site, some Task Team engineers were asked to participate in the Plant's efforts to cooperate with the Staff. For example, Task Team members were asked to escort inspection team members during their walkdown of the Plant since these engineers were very familiar with the Plant and the location of items of electrical equipment of interest to the inspectors. Moreover, many engineers on the Task Team helped respond to questions that the inspectors asked during the course of the inspection. To facilitate this effort, a practice was established in which the inspector would write down the question he wished answered. In some instances, an inspector would refuse to write down his question. If so, then we would write the question down and ask the inspector to confirm its accuracy. The form on which each question was

written also had a space for the answer so that the response would be documented.

Q14. Did you have a specific responsibility during the EQ inspection?

A: I was responsible for communicating with the inspection team leader, Mr. Norman Merriweather, to make sure that he and his inspection team had all the information that they needed.

Q15. Does this conclude your testimony?

A: Yes it does.