

ORIGINAL

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission

Title: Alabama Power Company (Joseph
M. Farley Nuclear Plant, Units
1 and 2)

Docket No. 50-148-CivP, 50-364-CivP
ASLBP No. 91-626-02-Civ1

LOCATION: Bethesda, Maryland

DATE: Friday, February 14, 1992

PAGES: 576 - 657

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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4 In the Matter of: Docket No. 50-348-CivP
 5 ALABAMA POWER COMPANY : 50-364-CivP
 6 [Joseph M. Farley Nuclear Plant, : ASLBP No. 91-626-02-Civ1
 7 Units 1 and 2] :

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9 Nuclear Regulatory Commission
 10 5th Floor Hearing Room
 11 East-West Towers
 12 4350 East West Highway
 13 Bethesda, Maryland
 14 Friday, February 14, 1992

15
 16 The above-entitled matter came on for hearing,
 17 pursuant to notice, at 9:01 o'clock a.m.

18
 19 BEFORE: THE HONORABLE G. PAUL BOLLWERK III, Chairman of
 20 Atomic Safety and Licensing Board
 21 THE HONORABLE DR. JAMES H. CARPENTER, Member of
 22 Atomic Safety and Licensing Board
 23 THE HONORABLE DR. PETER A. MORRIS, Member of the
 24 Atomic Safety and Licensing Board
 25

1 APPEARANCES:

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On behalf of the Alabama Power Company:

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NUCLEAR REGULATORY COMMISSION, OFFICE OF THE

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by: RICHARD G. BACHMANN, ESQUIRE

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ROBERT M. WEISMANN, ESQUIRE

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Nuclear Regulatory Commission

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1 [continued next page]

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3 On behalf of Bechtel Corporation:

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6 Bechtel Corporation

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I N D E X

Witness	Direct	Cross	Redirect	Recross	Board
William Levis	581	584	612	617	620
Norman Merriweather	581	584	612	617	620
James G. Luehman	581	584	612	617	620
William Levis	644	647			649
Charles Paulk	644	647			649
James G. Luehman	644	647			619

E X H I B I T S

Exhibit Number	Description	Identified	Received
Staff 52	Limitorque Report 600198, 1/2/69	583	643
Staff 53	Limitorque Report 600456, 12/9/75	583	643
Staff 54	Limitorque Test Report B0058	583	643
Staff 55	IE Information Notice 83-72 10/28/83	583	643
APCo 70	NUGEQ Report	615	
Staff 58	Letter from Mr. Holler to the Board, 1/16/91	634	656
Staff 57			656

P R O C E E D I N G S

[9:01 a.m.]

JUDGE BOLLWERK: Good morning. We're here this morning to begin cross-examination with the staff panel on limitorque operators.

Is there anything preliminary before I have the panel sworn in?

MR. HOLLER: Nothing preliminary from the staff side.

MR. REPKA: Nothing from this side.

JUDGE BOLLWERK: All right. Please go ahead.

MR. HOLLER: May it please the Board, we have the panel for, on behalf of the NRC staff concerning limitorque motor operators seated. The panel has been sworn in with the exception of Mr. Levis.

Whereupon,

WILLIAM LEVIS

NORMAN MERRIWEATHER

and

JAMES G. LUEHMAN

were called as witnesses on a panel on limitorque motor operators by the Nuclear Regulatory Commission and, having been first duly sworn, were examined and testified as follows:

1 DIRECT EXAMINATION

2 BY MR. HOLLER:

3 Q Because this is a new panel, I am going to ask
4 each of the witnesses to state their names and current
5 positions at the NRC for purposes of the record. Beginning
6 with Mr. Merriweather.

7 A [Witness Merriweather] My name is Norman
8 Merriweather. I am a Reactor Inspector in Unit 2.

9 A [Witness Levis] My name is William Levis. And I
10 am presently the Senior Resident Inspector at the Davis-
11 Bessey Nuclear Power Station.

12 A [Witness Luehman] My name is James Luehman. I am
13 a Senior Enforcement Specialist, Office of Enforcement.

14 Q I'll ask the panel if they have before them a
15 document entitled: Testimony Of William Levis, Norman
16 Merriweather And James G. Luehman On Behalf Of the NRC Staff
17 Concerning Limitorque Operators?

18 A [Witness Merriweather] I do.

19 A [Witness Levis] I do.

20 A [Witness Luehman] I do.

21 Q I will ask you now, each of you one at a time,
22 I'll ask if you participated in the preparation of this
23 document -- Mr. Merriweather?

24 A [Witness Merriweather] I did.

25 Q Mr. Luehman?

1 A [Witness Luehman] I did.

2 Q Mr. Levis?

3 A [Witness Levis] I did.

4 Q Are there any corrections to be made to this
5 document, to your testimony?

6 A [Witness Merriweather] No.

7 A [Witness Levis] No.

8 A [Witness Luehman] No.

9 Q I'll then ask you each individually if the
10 testimony you have before you on limitorque operators is
11 true and correct to the best of your knowledge and belief?

12 A [Witness Merriweather] Yes, it is.

13 A [Witness Levis] Yes, it is.

14 A [Witness Luehman] Yes, it is.

15 MR. HOLLER: At this point I'll move to bind into
16 the record the testimony of William Levis, Norman
17 Merriweather and James G. Luehman on behalf of the NRC staff
18 concerning limitorque operators as if read.

19 JUDGE BOLLWERK: That testimony is received, and
20 will be bound into the record.

21 [The direct testimony of William Levis, Norman
22 Merriweather and James G. Luehman concerning limitorque
23 operators follows.]

24

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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 LEVIS,
NORMAN MERRIWEATHER AND JAMES G. LUEHMAN
ON BEHALF OF THE NRC STAFF CONCERNING LIMITORQUE OPERATORS

Q1. State your full name and current position with the NRC.

A1. William Levis, Senior Resident Inspector, Davis Besse Nuclear Power Station.

Norman Merriweather, Reactor Inspector (Electrical), Region II.

James G. Luehman, Senior Enforcement Specialist, Office of Enforcement.

Q2. Have you prepared a copy of your Professional Qualifications?

A2. (All) A copy of each of our Professional Qualifications is included in Staff Exh. 1.

Q3. What is the purpose of your testimony?

A3. (All) The purpose of our testimony is to support the Staff's position regarding certain of the violations of the environmental qualification (EQ) requirements for the Limitorque valve operators at the Farley nuclear plant as set forth in the Notice of Violation (NOV), dated August 15, 1988 (Staff Exh. 2), and the Order Imposing a Civil Penalty, dated August 21, 1990 (Staff Exh. 3). Specifically we will offer testimony regarding missing

T-drains and unqualified terminal blocks.

Q4. What are the EQ requirements that the Staff alleges were violated?

A4. (All) The EQ requirements and the nature of the violations are stated in the NOV (Staff Exh. 2), pages 2 and 3, under the heading "Violations Assessed A Civil Penalty" (Violation I.C.1). The Staff has decided not to pursue mixed grease and a limit switch with an aluminum housing as examples in support of the violation as part of the basis for the Order Imposing a Civil Penalty (Staff Exh. 3) and restates the violation as follows:

10 CFR 50.49 (f) and (j), respectively, require in part that (1) each item of electric equipment important to safety shall be qualified by testing of, or experience with, identical or similar equipment, and the qualification shall include a supporting analysis to show that the equipment to be qualified is acceptable, and (2) a record of the qualification of the electric equipment shall be maintained in an auditable form to permit verification that the required equipment is qualified and that the equipment meets the specified performance requirements under postulated environmental conditions.

Contrary to the above, from November 30, 1985 until the time of the inspection which was completed on November 20, 1987:

1. The APC EQ files did not document qualification of several Limitorque valve operators in that the plant equipment was not identical in design and material construction to the qualification test specimen and deviations were not adequately evaluated as part of the qualification documentation. Specifically, in one or more of the operators, T-drains were missing, motor leads had unqualified splices, and terminal blocks were unidentified and unqualified.

(Merriweather) In general, the original equipment at Farley Unit 1 had to meet the requirements of the Division of Operating Reactors (DOR) Guidelines (Staff Exh. 24)

and Unit 2 equipment had to meet the requirements of NUREG 0588 (Staff Exh. 23) Cat II. However, replacement equipment had to meet the requirements of 10 C.F.R. § 50.49.

Q5. What was your role, if any, in the November 1987 inspection referenced in the NOV?

A5. (Levis) I participated both in the documentation review and walkdown portions of the Farley EQ inspection. I inspected the qualification files for the Limitorque Valve Operators.

(Merriweather) During the November 1987 inspection I served as team leader. My primary responsibility was to coordinate and plan the inspection scope and to make individual team assignments. I was the primary spokesman for the team during entrance and exit meetings with Alabama Power Company (APCo) and provided daily briefings with APCo regarding the inspection findings. The detail technical discussion regarding specific file concerns, walkdown issues and maintenance issues would have been discussed by me in general terms. However, in the daily meetings the file reviewers were present to discuss any issue.

Q6. What do you recall regarding the information you reviewed to support qualification of Limitorque valve operators used at Farley?

A6. (Levis) The documentation in the file did not support qualification of the Limitorque valve operators as installed at the Farley Nuclear Plant. Among other things, T-drains were not installed and unidentified terminal blocks were used for powerleads.

Regarding the T-drains, APCo used 2 qualification reports to qualify their Limitorque MOV's for inside containment and high energy line break areas. One report 600198 (Staff Exh. 52) tested an operator with a motor of class H insulation with no T-drains. The total test duration was 7 days. The other test report 600456 (Staff Exh. 53) tested an operator with a motor constructed of RH insulation that had T-drains installed. The actuator was oriented such that any water which would accumulate in the motor or actuator would drain out through the T drain. APCo stated in their evaluation, supplied during the inspection, that the 7 day test combined with the 30 day test was sufficient to qualify their actuators installed without T-drains for the 30 day post accident operating time. I did not agree with this evaluation primarily due to the fact that the test without T-drains was only 7 days in duration versus the 30 days required. One of the arguments presented by APCo to justify their position was that the T-drains were the primary source of entry of water into the actuator and motor during qualification. If this is true then the conduit entry was provided with some sort of seal during testing to preclude water from entering via this pathway. APCo used unsealed conduit which entered the actuator from the top for their valve actuators. In this configuration, with no T-drains to allow drainage, the actuator switch compartment and motor would fill with water following a design basis accident. The water could possibly drain through gasketed surfaces. However, this is dependent upon condition of gasket, torque of bolts, absence of corrosion products, etc. and has not been demonstrated by test.

Regarding the terminal blocks, a review of walkdown check sheets from October 1986 for Unit 1 indicated the use of various manufacturer's terminal blocks. The

qualification file did not specify which blocks were acceptable for use. APCo stated during the inspection that terminal blocks qualified by Limitorque report B0119 were acceptable for use. Subsequent review indicated that terminal blocks from manufacturers other than those specified in report B0119 were used in Farley MOV's.

The presence of terminal blocks from various manufacturers and lack of T-drains was found by reviewing walkdown sheets and field verification of selected operators.

(Merriweather) I was informed verbally by W. Shipman of APCo that APCo found valve operators with terminal blocks not specified in report B0119. He did not identify which valves were involved.

Q7. What was your role in the preparation of the Inspection Report?

A7. (Levis) I prepared, among other things, input for Section 6.i.(3) of Inspection Report 50-348, 364/87-30 (Staff Exh. 12). My findings, which I adopt as part of my testimony, are as follows:

(3) Limitorque Motor Operators

During the course of the inspection PCN 86-1-3760 was reviewed. This PCN was generated to resolve concerns detailed in IEN 86-03, specifically the use of unqualified internal jumper wires in limitorque motor operated valves (MOV's). Coincident with the internal wiring inspection/replacement required by the PCN other items of MOV's were checked per an approved check sheet. Some items of concern noted by the team during the review of the completed walkdown sheets which were performed for Unit 1 during October 1986 include the following:

- T drains not installed at low point for 15 MOVs
- Presence of one MOV inside containment with limit switch frame housing constructed of aluminum
- Use of unidentified terminal blocks for power leads in Limitorque MOVs

The absence of T-drains was also noted during the walkdown inspection conducted the week of November 2, 1987. Specifically, MOVs 3046, 3660, 3441A, 3441B and 3872A were configured for T-drains but did not have them installed. In addition the MOV was installed with the limit switch compartment on the same horizontal plane as the motor with top entry conduit into the switch compartment for both the power and control cables. During the course of the inspection the team was presented with additional information by the licensee to justify their installed configuration. The team was satisfied with the information presented for these MOVs which had a short term operating requirement. However, for those MOVs which have a long term operating requirement, be it valve position indication or valve repositioning the team was not satisfied. The team was concerned that the long term affects of moisture intrusion were not adequately addressed as the tested versus installed configuration with respect to orientation and conduit system differed and the referenced test without T-drains had a total test duration of seven days. This item is considered to be a Violation of 10 CFR (50.49) and is identified as Violation 50-348, 364/87-30-07, Lack of T-Drains in Limitorque Motor Operated Valves.

The walkdown check sheet for MOV Q1E11MOV8811A dated October 9, 1986, indicated that the limit switch frame housing was constructed of aluminum. Aluminum is not qualified for applications where it can be subjected to a caustic spray environment as evidenced in Limitorque report 600198 where a limit switch frame housing constructed of aluminum corroded and caused the limit switch to fail less than 24 hours into the test. The licensee pointed out to the team that they became aware of this problem during a recent review of the walkdown data and had initiated MWR 167476, dated November 3, 1987, to replace the switch during the upcoming refueling outage. In addition, an administrative LCO was written for this valve on November 19, 1987, to ensure that the valve remained in its required safety position. This unqualified component is in violation of 10 CFR 50.49 and is listed as Violation 50-348, 364/87-30-08, Use of Unqualified Limit Switch in Motor Operated Valve.

The walkdown check sheets also indicated the use of terminal blocks for some of the power leads. Some were identified by just the manufacturer's name, i.e. Buchanan, with no model number or by just the color, i.e., black. The equipment qualification file for the Limitorque MOV's file numbers 23A, 23B and 23C did not specify which terminal blocks were acceptable for use in Limitorque MOVs. During the inspection the licensee stated that terminal blocks qualified by report B0119 were acceptable for use. However, there was no evidence that the licensee had

reviewed this report to determine its acceptability nor had they verified that the terminal blocks installed in their MOVs were one of the models tested in the B0119 report. This item is identified as Unresolved Item 50-348, 364/87-30-09, Use of Unidentified and/or Unqualified Terminal Blocks in Limitorque Motor Operated Valves.

(Merriweather) I did not review the files but the deficiencies are described in Section 6.i.(3) of Inspection Report 50-348, 364/87-30 (Staff Exh. 12), which I reviewed. Based on these deficiencies, I determined the file did not adequately support qualification.

Q8. What NRC regulation or regulations provide the basis for the Staff to determine that the deficiencies described were EQ violations?

A8. (Merriweather) The DOR Guidelines (Staff Exh. 24) at paragraph 5.2.2 Test Specimen, requires plant equipment to be identical in design and material construction to the test specimen and deviations must be evaluated as part of the qualification documentation. DOR Guidelines Paragraph 5.2.6 requires that for the qualification test to be considered conclusive the equipment mounting and electrical or mechanical seals should be representative of the actual installation.

Q9. Why should APCo have been aware that the deficiencies the Staff has identified were a concern for the qualification of the Limitorque valve operators used at Farley?

A9. (Merriweather) T-drains - Section 6.0 of the vendor test report B0058 (Staff Exh. 54), of which 600456 is a part, requires that T-drains be installed to accommodate the extreme temperatures and pressures of a design basis event environment. The

qualified tested configuration is also described in the test report.

(Levis) APCo had identified the deficiencies with T-drains in the fall of 1986. The T drain evaluation was not done until the time of the inspection and the terminal blocks had not been fully evaluated by the end of the inspection. While an evaluation of the lack of T-drains was provided during the inspection it did not adequately address the long term moisture effects with respect to the specific Farley installation. This was not a new NRC position and other inspections looked for the same attributes for the Limitorque operators. I also called Limitorque and asked if T-drains were required. I was informed that if they were configured for T-drains they should be installed.

(Levis) Terminal blocks - Office of Inspection and Enforcement Information Notice (IEN) 83-72 (Staff Exh. 55) provided information to licensees concerning the adequacy of terminal blocks supplied in Limitorque MOV's. APCo had identified the deficiencies with terminal blocks in the fall of 1986. APCo stated to me that report B0119 applied to terminal blocks used in the Limitorque valve operators used at Farley. However, no information was provided for terminal blocks for manufacturers other than the manufacturer specified in report B0119.

Q10. In your opinion, how long had the deficiencies you allege existed? How did you determine this?

A10. (Levis) I believe these deficiencies have existed as long as the actuators have been installed. T-drains are normally shipped with the actuator and require installation by

APCo. A solid plug was installed in actuators observed in the field indicating that these plugs were not removed and replaced by the T-drain as required. I do not recall seeing anything that would indicate that the terminal blocks were not part of the original installation.

(Merriweather) In my opinion the above deficiencies existed prior to November 30, 1985. I am not aware of any design changes that would have replaced the subject operators.

Q11. Describe the components or systems affected by the Limitorque valve operators used at Farley that you determined had a deficient qualification file.

A11. (Merriweather) Examples of systems affected with operators that did not have T-drains installed were Component Cooling Water, Containment Cooling and Purge, Service Water, and Reactor Cavity Post LOCA Dilution System. These valve operators were inspected during the walkdown of unit 2 and are discussed in Inspection Report 50-348,364/87-30 (Staff Exh. 12) at page 20.

Q12. Describe your participation in any enforcement conferences or other meetings with APCo regarding this violation.

A12. (Levis) I attended the enforcement conference with APCo at which time they discussed all issues noted in inspection report. Although I do not recall specifics I believe APCo stated that they were going to install T-drains in their MOVs although they felt they had technical justification not to.

(Merriweather) I was team leader for the November inspection so I presented the inspection findings at the exit meeting. I also attended the enforcement conference.

Q13. What, if any, APCo analysis regarding these alleged violations was considered by the Staff before citing APCo for a violation involving Limitorque valve operators?

A13. (Levis) APCo developed an analysis for T-drains during the inspection. APCo stated that the B0119 report applied for their MOV's but no report was provided in the qualification file.

(Merriweather) An analysis on T-drains was presented by APCo during the enforcement conference on March 15, 1988. It is summarized on page 3 of 50 of enclosure 3 of the enforcement conference summary dated April 13, 1988 (Staff Exh. 13). I did not review any analysis like the one presented on March 15, 1988, at the November 1987 inspection. The analysis discussed in Section 6.i.(3) of the November inspection report (Staff Exh. 12) was considered to be inadequate for valves used in applications requiring long term use after a design basis accident because the environmental parameters were not bounded by the referenced report and the actual configuration could allow moisture to enter the valve operator with uncertainty that it would drain from the limit switch and motor compartment. The information discussed in the enforcement conference was available and known by me at the time the NOV (Staff Exh. 2) was written.

Q14. Describe how you determined that this violation, under the provisions of the Commission's Modified Enforcement Policy, was sufficiently significant, standing alone to be considered for escalated enforcement?

A14. (Luehman) Sufficient data did not exist and was not developed during the inspection to demonstrate qualification. Because this was more than a minor file deficiency it meets the criteria for escalated enforcement under the Modified Enforcement Policy (Staff E:th. 4).

Q15. Does this complete your testimony regarding this matter?

A15. (All) Yes.

1 MR. HOLLER: For the purposes of identification of
2 this testimony, I would ask that the following exhibits be
3 marked for identification:

4 Exhibit 52, Limitorque Report 600198, Limitorque
5 Valve Control Test Report, dated January 2, 1967 -- and
6 that's Staff Exhibit 52.

7 For identification purposes, Staff Exhibit 53,
8 Limitorque Report 600456, Qualification-Type Test Report,
9 dated December 9, 1975.

10 For identification, Staff Exhibit 54, Limitorque
11 Test Report B0058, Nuclear Qualification, no date.

12 And for identification, Staff Exhibit 55, IE
13 Information Notice 83-72, Environmental Qualification
14 Testing Experience, dated October 28, 1983.

15 [Staff Exhibits 52, 53, 54 and
16 55 were marked for
17 identification.]

18 JUDGE BOLLWERK: We have marked those as
19 identified, and we'll simply reference back to this point in
20 the transcript when we go ahead and admit them into
21 evidence, if that's what happens.

22 MR. HOLLER: At this point, if it pleases the
23 Board, I present the panel on limitorque operators for
24 cross-examination.

25 JUDGE BOLLWERK: All right.

CROSS-EXAMINATION

1
2 BY MR. REPKA:

3 Q Thank you Mr. Holler. Good morning, gentlemen.
4 Mr. Levis, welcome to the festivities.

5 A [Witness Levis] Thank you.

6 Q Mr. Merriweather, you were the team leader on this
7 inspection, is that correct?

8 A [Witness Merriweather] Yes, that is correct.

9 Q And this is in November of 1987?

10 A [Witness Merriweather] Yes.

11 Q Did you review any files when you were at Farley
12 Nuclear Plant in November of 1987?

13 A [Witness Merriweather] No, I didn't.

14 Q You didn't review any EQ files?

15 A [Witness Merriweather] No. I don't believe I
16 did.

17 Q Mr. Merriweather, in your testimony you refer on
18 page 7 to paragraph 5.22 of DOR guidelines?

19 A [Witness Merriweather] Yes.

20 Q Are you familiar with those guidelines?

21 A [Witness Merriweather] Yes, I am.

22 Q Is it your understanding that an EQ file or an EQ
23 test needs to address all installed configurations?

24 A [Witness Merriweather] Excuse me?

25 Q That an EQ file or EQ test needs to address all

1 installed configurations?

2 A [Witness Merriweather] It is my understanding
3 that the deviations between the tested versus the installed
4 configuration has to be evaluated.

5 Q Okay. But not all configurations need to be
6 tested?

7 A [Witness Merriweather] I didn't say that.

8 Q Now, some deviations can be evaluated?

9 A [Witness Merriweather] Yes.

10 Q And that can be done by analysis, or whatever
11 kinds of analytical techniques are technically sound,
12 correct?

13 A [Witness Merriweather] Technically sound, yes.

14 Q Now, does every single deviation need to be
15 analyzed?

16 A [Witness Merriweather] If it affects the
17 qualification, it needs to be analyzed. I think you have to
18 make a determination whether the deviation is a
19 qualification-type of a deviation, or whether the deviation
20 is something else. This is in a general sense.

21 Q Right. So in a general sense, there is a
22 threshold in which you can decide something is not a
23 qualification issue, and you don't need to address it?

24 A [Witness Merriweather] I believe that is correct,
25 yes.

1 Q Mr. Levis, I gather from reading this testimony
2 that this limiter torque issue was really your issue. Is that
3 an accurate perception on my part?

4 A [Witness Levis] I wouldn't describe it as my
5 issue. I inspected the file at the Farley plant.

6 Q Okay. You were the one who reviewed the file.
7 Did you walk down the limitorques also?

8 A [Witness Levis] Yes, I did.

9 Q And were you the person who originally wrote this
10 up as a finding?

11 A [Witness Levis] Yes, I was.

12 Q Mr. Levis, I'm going to hand you something here.
13 Do you know what that is?

14 A [Witness Levis] This is a T-drain.

15 Q And that's a fair and accurate representation of
16 the T-drains for limiter torque MOV. Is that correct?

17 A [Witness Levis] Yes, it is.

18 MR. REPKA: I'm going to hand this to the Board
19 for their edification and illustration purposes.

20 BY MR. REPKA:

21 Q Mr. Levis, do you know what the purpose of the T-
22 drain is?

23 A [Witness Levis] There are two purposes for a T-
24 drain, one of which is to drain accumulated moisture out of
25 the motor housing, and the second is to allow for pressure

equalization during the design basis event.

Q Okay. And that -- the concern that you've articulated in your direct testimony on this issue is draining moisture, is that right?

A [Witness Levis] That's correct.

Q Now, the way I understand it, that T-drain that I've handed to the Board, that replaces -- it replaces a solid plug in the limitorque housing. Is that correct?

A [Witness Levis] That's correct.

Q Now, would that always be installed at the bottom of the limitorque housing?

A [Witness Levis] It's required to be installed such that accumulated water in the motor can be drained from it; so most likely, it would be installed at the low point.

Q You said required. Required by what?

A [Witness Levis] Required by the test report for in-containment applications.

Q You are referring to a particular test report?

A [Witness Levis] Yes, I am.

Q Do you know which report that is?

A [Witness Levis] Staff Exhibit 54, B0058, Section 6, Page 30. And what it says essentially is that for inside containment applications, there are certain design and construction features, such as special motor installation, Viton seals, elimination of aluminum parts, and use of

1 T-drains and grease release to accommodate the extreme
2 temperatures and pressure. of containment design basis
3 environments.

4 Q The report you are referring to, Test Report
5 B0058, is that the same as Test Report 600456?

6 A [Witness Levis] It's -- 456 is included as a
7 portion of that, yes.

8 Q Okay. Now, are you also familiar with Test Report
9 600 198, which has been previously marked in this proceeding
10 as APCo Exhibit 68?

11 A [Witness Levis] Yes, I am.

12 Q Okay. And that test report did not specify
13 T-drains, did it?

14 A [Witness Levis] That's correct.

15 Q And those operators were qualified. Is that
16 correct? Without T-drains.

17 A [Witness Levis] They were qualified for a seven-
18 day operating time, yes.

19 Q Okay. Is there any question in this proceeding
20 that the two test reports referred to by Alabama Power
21 Company Test Report 600 198 and Test Report B0058 or 600 456
22 were in the files or available to you at the time of the
23 inspection?

24 A [Witness Levis] No, there's no question to that
25 effect.

1 Q Okay. So what we have here really is a
2 performance issue. It's not a documentation issue. The
3 documents were there; you just don't believe they covered
4 your concern. Is that correct?

5 A [Witness Levis] Just because a given report is in
6 a file does not mean that that's sufficient documentation to
7 qualify something. Along with that has to go the supporting
8 analysis that demonstrates that, in fact, this test is
9 applicable to your configuration.

10 Q That's right. But the test report without
11 T-drains covered qualification for the seven-day accident,
12 correct?

13 A [Witness Levis] That's correct.

14 Q Now, if you had agreed or believed that that
15 seven-day was sufficient with whatever analysis techniques
16 needed to be applied, then the documentation would have been
17 sufficient, correct?

18 A [Witness Levis] I'm not sure I understand the
19 question.

20 Q If you had agreed with Alabama Power Company's
21 position that the seven-day test sequence without T-drains
22 was sufficient to cover the Farley installed application,
23 then we wouldn't have no other documentation problem, would
24 we?

25 A [Witness Levis] No.

1 Q Okay.

2 [Witnesses conferring off the record.]

3 MR. HOLLER: I'm going to object to the form of
4 that question. I don't understand it and I don't know that
5 the witnesses do. But "wouldn't have no other" -- perhaps
6 counsel could clarify that.

7 JUDGE BOLLWERK: Why don't you make some attempt
8 to clarify the question. I think I'm having the same
9 problem.

10 BY MR. REPKA:

11 Q What I'm trying to understand here is that there
12 was no deficiency in the documentation but for the seven-day
13 duration of the test.

14 A [Witness Levis]" Well, I think, if we're just
15 talking about T-drains, that's correct. There were some
16 other issues in this testimony, such as terminal blocks,
17 that that wouldn't be applicable for.

18 Q I'm only talking about T-drains right now.

19 A [Witness Levis] Our issue was that for those
20 operators with a longer than seven-day operating period, the
21 analysis did not support the qualification for those cases.

22 Q Right. And you were given an analysis of that
23 issue during the inspection, or it was existing in the file
24 at the time. Is that correct?

25 A [Witness Levis] I was given an analysis during

1 the inspection, that's correct, --

2 Q Okay

3 A [Witness Levis] -- that addressed not only the
4 long-term costs or the short-term, because that was not in
5 the file when we first arrived.

6 Q Okay. And you accepted the analysis for the
7 short-term MOVs.

8 A [Witness Levis] That's correct.

9 Q Okay. So those aren't an issue in this
10 proceeding.

11 A [Witness Levis] Not for the T-drains, no.

12 Q For the T-drains. Let's restrict ourselves to
13 T-drains right now.

14 Have you any idea -- strike that.

15 In your testimony, on Page 6, the top of that
16 page, lines 2 and 3, you refer to four MOVs there, 3046 --
17 or five -- 3660, 3441A, 3441B and 3872A. Are those the MOVs
18 that you identified as having this T-drain problem?

19 A [Witness Levis] These were some motor operated
20 valves that we had looked at during the walkdown portion of
21 our inspection that did not have T-drains installed. They
22 are not all encompassing of all the MOVs that did not have
23 them installed.

24 Q Okay. Do you have any idea how many of these were
25 short-term, as you've termed them, MOVs versus long-term?

1 A [Witness Levis] No, I did not. That information
2 was not provided to me during the inspection.

3 Q Mr. Levis, are you familiar with Arrhenius
4 techniques? I'll spell that for the benefit of the court
5 reporter. It's A-r-r-h-e-n-i-u-s.

6 A [Witness Levis] Yes, I am.

7 Q Is it not true that Arrhenius techniques are a
8 recognized method for extending a qualification test
9 duration?

10 A [Witness Levis]" It's a recognized method for
11 equating time and temperature at one set of conditions to an
12 equivalent time and temperature.

13 Q And it has been found acceptable for extending a
14 test in the steam environment. Is that not true?

15 A [Witness Levis]" It's been acceptable to extend an
16 operating test to show that some accident time at a given
17 temperature is equivalent to perhaps a longer time at
18 another temperature. I wouldn't say necessarily in the
19 steam environment.

20 [Counsel for APCo conferring off the record.]

21 BY MR. REPKA:

22 Q Mr. Levis, are you familiar with the report of the
23 Nuclear Utility Group on Equipment Qualification of April
24 1986 that has been previously marked in this proceeding as
25 APCo Exhibit 70? It was a Nuclear Utility Group on

1 Equipment Qualification Report on Limitorque Operators?

2 A [Witness Levis] I'm familiar with the NUGEQ
3 Report. I'm not sure if that's the specific one I've seen
4 before or not.

5 Q Okay. Was that something you were familiar with
6 at the time of the Farley inspection?

7 A [Witness Levis] It was something I was shown
8 during the Farley inspection, yes.

9 Q Okay. Had you ever seen it prior to that time?

10 A [Witness Levis] Yes, I had.

11 Q Now, are you aware that that report was developed
12 by the industry in conjunction with Limitorque?

13 A [Witness Levis] I'm not sure what Limitorque's
14 participation was in it. I know it was developed by the
15 industry.

16 Q Now, isn't it true -- are you -- strike that.

17 Are you familiar with the report, to the extent of
18 how it handled the issue of T-drains?

19 A [Witness Levis] Yes, I am.

20 Q Okay. Do you know what the group concluded with
21 respect to T-drains?

22 A [Witness Levis] Yes, I do.

23 Q What was that?

24 A [Witness Levis] Basically, that you could use
25 other test reports without T-drains to qualify yours, if

1 that existing report encompassed your environmental profile.

2 Q And is it your position that the existing reports
3 did not encompass the Farley profile?

4 A [Witness Levis] For the long-term operators,
5 that's correct.

6 Q Okay. So, again, we're back to the seven versus
7 30-day differential?

8 A [Witness Levis] That's correct.

9 Q With respect to that seven versus 30-day
10 differential, is the concern that you're concerned with --
11 it is entirely moisture ingress into the operator?

12 A [Witness Levis] Yes, it is.

13 Q Okay. And do you know whether any amount of
14 moisture intrusion will cause a performance problem with the
15 valve?

16 A [Witness Levis] I'm not sure I understand the
17 question.

18 Q Well, is there -- does -- is there some level of
19 moisture that is acceptable -- will not affect valve
20 performance?

21 A [Witness Levis] I'm not sure what level of valve
22 performance would be affected by moisture. That's why we
23 have these environmental tests to demonstrate how they'll
24 perform.

25 Q Okay. So, you don't know one way or the other

1 whether it would affect performance?

2 A [Witness Levis] To say that I don't know that it
3 will affect performance is inaccurate. It's my -- I would
4 say that certainly moisture is going to affect the
5 performance of an electrical piece of equipment.

6 Now, the period at that time which that occurs is
7 something we demonstrate by test.

8 [Counsel for APCo conferring off the record.]

9 BY MR. REPKA:

10 Q Okay. Test Report 600456, that's the test report
11 where T-drains were installed, isn't it?

12 A [Witness Levis] That's correct.

13 Q Okay. And in that test report, isn't it true that
14 there was evidence of moisture intrusion into the MOV during
15 that test?

16 A [Witness Levis] That's correct.

17 Q And the performance of the MOV was not affected;
18 isn't that true?

19 A [Witness Levis] Well, I also don't know the level
20 to which moisture --

21 Q Let me get an answer to the question first, before
22 you try to explain it. Was that a yes or a no?

23 A [Witness Levis] Yes.

24 Q Okay. Did you have something you wanted to add to
25 that?

1 A [Witness Levis] It's important to recognize that
2 there were T-drains installed in that case which allowed
3 this water to drain out of the motor housing, so that there
4 weren't any -- what I call long-term moisture effects where
5 perhaps the motor was immersed in water for that entire
6 duration. And the level at which the water got to in the
7 motor I'm not certain of.

8 Q Mr. Levis, did you find this T-drain issue in
9 other nuclear power plants during EQ inspections?

10 A [Witness Levis] This issue was identified at
11 other facilities, yes.

12 Q Any others where you were involved in the
13 inspection?

14 A [Witness Levis] Others where I was on the
15 inspection team, but it was not the issue that I was
16 inspecting.

17 Q Okay. Is it fair to say it was a fairly common
18 first-round inspection finding?

19 A [Witness Levis] That's a fair statement.

20 Q Now, you came to the NRC in August 1987; is that
21 correct?

22 A [Witness Levis] That's correct.

23 Q And Farley -- the Farley EQ inspection was the
24 first inspection you ever participated in as an NRC
25 inspector, is that right?

1 A [Witness Levis] The September inspection was my
2 first. I had went to two other facilities prior to going to
3 Farley in November.

4 Q You had -- it was the first inspection -- oh, I
5 see, okay, September was the first and then you went to
6 other inspections?

7 A [Witness Levis] I went to two other facilities
8 prior to going to Farley in November.

9 Q Okay. I take it, since you strike that.

10 Isn't it true that you attended a Fundamentals of
11 Inspection course in Region II after the Farley inspection?

12 A [Witness Levis] I don't recall the dates, but it
13 was certainly after the September portion.

14 Q And that was the first formal inspector training
15 you had at the NRC?

16 A [Witness Levis] With the NRC, yes?

17 Q And you became qualified as a reactor inspector --
18 inspector in March, 1988?

19 A [Witness Levis]" That's correct.

20 Q Had you any experience at the NRC in the EQ
21 branch, or otherwise, on EQ issues, prior to November 30th,
22 1985?

23 A [Witness Levis] I had industry experience prior
24 to that time, but no NRC experience.

25 Q When you went to the inspection at Farley in

1 either September or November 1985, had -- were you made
2 aware, prior to that time, of any previous EQ inspections or
3 staff review documents related to Farley, such as TERs,
4 inspection reports?

5 A [Witness Levis] I'm not sure I understand the
6 question. And I've been in this business for three years,
7 basically, in industry, so I was familiar with many of the
8 environmental qualification documents. The specific ones
9 that pertain to Farley I was not.

10 Q So you were not made aware of a TER issue to
11 Alabama Power Company for Farley on December 10th, 1980
12 that's been previously identified here as APCo Exhibit 12?

13 A [Witness Levis] The TER was pointed out to us
14 during the inspection. If you're asking me if I was
15 familiar with it prior to the inspection, the answer is no.

16 Q Okay. That December 10th, 1980 TER, that's your
17 TER. Is that correct, Mr. Merriweather?

18 A [Witness Merriweather] I think he's correct when
19 he said --

20 A [Witness Levis] Oh, I'm sorry, yes. I thought
21 you were referring to the SER. That was what was pointed
22 out to in the inspection. The December '80 TER, I was not
23 familiar with.

24 Q Okay. When you say the SER, you mean the December
25 --

1 A [Witness Levis] The December '84 SER.

2 Q -- '84 SER. But the December 1980 TER, you were
3 never made aware of?

4 A [Witness Levis] That's correct.

5 Q Mr. Merriweather, do you have a copy of that
6 exhibit handy here this morning?

7 A [Witness Merriweather] No.

8 MR. HOLLER: We can make one available to Mr.
9 Merriweather.

10 JUDGE BOLLWERK: What number are we referring to?

11 MR. REPKA: APCo Exhibit 12.

12 JUDGE BOLLWERK: Okay.

13 [Document proffered to witness.]

14 BY MR. REPKA:

15 Q Are you with me, Mr. Merriweather?

16 A [Witness Merriweather] Yes.

17 Q Okay. Can I turn your attention to Page 2 of that
18 document.

19 A [Witness Merriweather] Okay.

20 Q Section 2.2, onsite inspection.

21 A [Witness Merriweather] Yes.

22 Q Can you read the first sentence on that page for
23 me?

24 A [Witness Merriweather] Okay. "The on site
25 inspection made on selected IE equipment verified proper

1 installation of equipment, overall interface integrity.
2 Location with respect to flood level for equipment inside
3 the containment, and manufacturer's nameplate date.
4 Manufacturer and model number for the nameplate date was
5 compared to information given in the component evaluation
6 worksheets in the licensee's report."

7 Q Okay. So that implies that there was some
8 inspection of installed equipment at Farley.

9 A [Witness Merriweather] Yes.

10 Q Can I refer you, then, to Attachment 1, Page 1 of
11 4. That's probably a lousy page number.

12 A [Witness Merriweather] 1 of 4? We don't have
13 page numbers. It's by systems.

14 JUDGE BOLLWERK: Do you want to use -- I'd prefer
15 if you just used a unified number. That would be --

16 MR. REPKA: I don't have a Bates number on my
17 copy. Is there a Bates number on your copy?

18 WITNESS MERRIWEATHER: Well, what page number are
19 you on?

20 MR. REPKA: Okay. I'm looking at Page 1 of 4 for
21 containment cooling and purge. It's probably about a third
22 of the way into the attachment.

23 WITNESS MERRIWEATHER: This is Attachment 2.
24 Okay. Here we go.

25 MR. REPKA: Okay.

1 WITNESS MERRIWEATHER: Yes.

2 MR. REPKA: Is the Board with me?

3 JUDGE CARPENTER: What page number is it, please?

4 JUDGE BOLLWERK: It's Bates number -- try Bates
5 number 0053469.

6 BY MR. REPKA:

7 Q Mr. Merriweather, do you see the first two items
8 checked on that page?

9 A [Witness Merriweather] The first two items?

10 Q Uh-huh.

11 A [Witness Merriweather] Yes.

12 Q Does it say MOV?

13 A [Witness Merriweather] Right.

14 Q Okay. And those are checked as acceptable. Is
15 that correct?

16 A [Witness Merriweather] Well, let's see. What do
17 we mean by "as acceptable." Let's see.

18 Q Qualified profile.

19 A [Witness Merriweather] Well, I think, if you look
20 at the last column, that says "Category of Items." Let's
21 see. That's the -- equipment is qualified, right.

22 Q Okay. And those are checked as acceptable for the
23 chemical spray environment. Is that right?

24 A [Witness Merriweather] Right.

25 Q Okay. Spray implies moisture, does it not?

1 A [Witness Merriweather] Right.

2 Q Okay. Let me try -- let's go four pages later,
3 service water system, and it's labelled as Page 1 of 2,
4 since I don't have a Bates number.

5 A [Witness Merriweather] Well, wait a minute. How
6 did we get to service water?

7 Q That's four pages later.

8 A [Witness Merriweather] Four pages later. Okay.

9 Q The Bates number we have is 0053473.

10 A [Witness Merriweather] There we go.

11 Q Okay. Do you see the first five items checked on
12 that page?

13 A [Witness Merriweather] Yes.

14 Q And those are all MOVs, are they not?

15 A [Witness Merriweather] Right.

16 Q And they are all listed as Category 1.

17 A [Witness Merriweather] Right.

18 Q Qualified.

19 A [Witness Merriweather] Right.

20 Q And they all are checked as acceptable for a
21 chemical spray environment, correct?

22 A [Witness Merriweather] Yes.

23 Q Okay. I am going to refer now to what previously
24 has been marked as APCO Exhibit 11. Do you have that in
25 front of you, Mr. Merriweather?

1 A [Witness Merriweather] Exhibit 11?

2 Q Exhibit 11.

3 A [Witness Merriweather] No.

4 Q No?

5 Okay. First I want to refer you to page 1 of
6 what's labeled as the Detail Section. And I have a Bates
7 number 0056301 on my copy.

8 A [Witness Merriweather] Okay, I have it.

9 Q You are with me?

10 A [Witness Merriweather]" Yes.

11 Q You see Item 5 there?

12 A [Witness Merriweather] Yes.

13 Q And can you read the first sentence under there?

14 A [Witness Merriweather] Physical examination was
15 made of installed electrical instrumentation and control
16 equipment associated with auxiliary steam, feed water
17 control, main steam, auxiliary feed water, condensation and
18 main feed water systems. Equipment that was examined is
19 located outside the perimeter of containment.

20 Q Okay. Now, some of the following pages list the
21 equipment examined by system, is that correct?

22 A [Witness Merriweather] Right.

23 Q Let me refer you then to page 3, under Main Feed
24 Water System.

25 A [Witness Merriweather] Okay.

1 Q There are three items of equipment listed, are
2 there not?

3 A [Witness Merriweather] Right.

4 Q And those are all limitorque motor operators,
5 right?

6 A [Witness Merriweather] Right.

7 Q And can you read the following sentence?

8 A [Witness Merriweather] The equipment inspected
9 was examined for proper installation, overall interface
10 integrity, and manufacturer's nameplate data was obtained.

11 Q Okay, that's fine.

12 A [Witness Merriweather] Okay. One point is that
13 this equipment was outside containment. I don't think that
14 it's the valves that we're talking about.

15 Q Okay, but they were limitorque motor operators,
16 correct?

17 A [Witness Merriweather] Oh, yes, they're
18 limitorques, right.

19 Q All right. Let me refer you to Section 6, Unit 2.

20 A [Witness Merriweather] Section 6, okay. Yes.

21 Q Then to page 4, Containment Cooling and Purge.

22 A [Witness Merriweather] Okay.

23 Q And that item of equipment listed is what?

24 A [Witness Merriweather] Excuse me? Ask the
25 question again?

1 Q What item of equipment was inspected under
2 Containment Cooling and Purge?

3 A [Witness Merriweather] Okay, that's a motor
4 operator, limitorque.

5 Q Okay. Thank you, Mr. Merriweather.

6 Mr. Levis, isn't it true that the T-drain issue
7 was one that Alabama Power Company had raised itself with
8 respect to limitorque motor operators?

9 A [Witness Levis] In 1986 we did a series of
10 walkdowns that looked for, among other things, the presence
11 or absence of T-drains. And you identified that there were
12 some motor-operated valves that did not have T-drains
13 installed at the low point.

14 Q Okay. And is that commensurate with your own
15 experience that that was a time when NRC inspections were
16 beginning to find T-drain issues?

17 A [Witness Levis] That's not correct. I think the
18 T-drain issue was around before 1986.

19 Q Yet it was being found by -- by your
20 acknowledgement, you mention that it was a fairly common
21 first-round EQ inspection finding, is that right?

22 A [Witness Levis] That's correct.

23 Q And in 1986 it was a common enough issue that it
24 was addressed in the NUGEQ Report we talked about earlier?

25 A [Witness Levis] Yes.

1 Q Okay. And you mentioned that it had been an
2 issue. In your words, it had been around for quite some
3 time. That being the case, how was industry notified of the
4 T-drain issue?

5 A [Witness Levis] The first time I can recall was
6 in IE 83-72.

7 Q Okay. Did IE 83-72 talk about T-drains?

8 A [Witness Levis]" Yes, it did.

9 Q Excuse me for a second, while we dig out a copy of
10 83-72.

11 [Counsel for APCo conferring off the record.]

12 JUDGE BOLLWERK: I think it's your number 72. I
13 don't know if that's been identified as Staff 55.

14 BY MR. REPKA:

15 Q Let me ask you a couple of other questions here.
16 You have mentioned that Test Report 600198, which is the
17 limitorque test without T-drains -- you didn't find it
18 acceptable for Farley. Do you know of any plant where it is
19 acceptable? Or has been found acceptable?

20 A [Witness Levis] I found the 198 report acceptable
21 for the Farley applications when there was less than a
22 seven-day, or seven-day or less operating time. I'm not
23 aware that it was found acceptable for applications longer
24 than seven days at other facilities.

25 Q Okay. So with respect to the longer durations,

1 you don't know whether or not it has been found acceptable?

2 A [Witness Levis]" That's correct.

3 Q Would it surprise you if it had been?

4 A [Witness Levis] I think there are a number of
5 things that you have to evaluate before you determine it's
6 qualified. If this facility had, for example, conduit seals
7 installed, where it would preclude the entry of moisture in
8 the motor compartment, then it could be acceptable.

9 In the Farley application, there were no conduit
10 seals. The conduit entered the switch compartment from the
11 top, and then was subjected directly to containment sprays.

12 Q Okay. Let me turn to the subject of terminal
13 blocks in limitorque operators. Switching gears a little
14 bit.

15 The terminal blocks -- explain this issue for me
16 in your words. The terminal block and MOV issues at Farley
17 -- issue at Farley.

18 A [Witness Levis] There were some limitorque
19 operators that had unidentified or unqualified terminal
20 blocks being used on limitorque motor operator valves.

21 Q Okay. The limitorques that you were concerned
22 about for this issue, were those inside or outside
23 containment MOVs?

24 A [Witness Levis] I don't recall if it was specific
25 to one or the other.

1 Q Okay. So it was just a general concern?

2 A [Witness Levis] It was -- yes, that's correct.

3 Q Okay. Based on what? Based on an issue
4 identified by Alabama Power Company?

5 A [Witness Levis] Once again, the 1986 walkdown
6 that was done, identified, in these walkdown sheets,
7 terminal blocks that were being used. And in some cases
8 there were unidentified blocks being used, and blocks later
9 that Alabama Power determined weren't covered by
10 qualification documentation.

11 Q Okay. Do you know -- tell me how would you find
12 these terminal blocks? Is this something that's inside the
13 MOV?

14 A [Witness Levis] You would have to open up the
15 switch cover and look at it.

16 Q The MOVs at issue here were all MOVs that were
17 qualified by Limitorque; is that correct?

18 A [Witness Levis] I'm not sure I understand what
19 you mean by "qualified by Limitorque."

20 Q Okay. Limitorque sold the MOV to Alabama Power
21 Company, right?

22 A [Witness Levis] I'm not sure if they did
23 directly, or if they went through a supplier or how the --

24 Q Okay. You don't know --

25 A [Witness Levis] -- process worked.

1 Q -- one way or the other. In your experience, do
2 you know whether Limitorque tested its valves as a complete
3 valve or did it test and qualify it by subcomponent?

4 A [Witness Levis] Qualified by a complete assembly.

5 Q Okay. So, if a licensee bought the complete
6 assembly from Limitorque and it was qualified by Limitorque
7 as an assembly, doesn't that give some reason to believe
8 that the assembly was going to be qualified?

9 A [Witness Levis] Yes. There are still other
10 things you have to do. For example, T-drains are not
11 installed with the operator when it's shipped, so that's
12 something that the licensee would have to install
13 themselves.

14 Q Right.

15 MR. REPKA: Okay. With the Board's indulgence, I
16 would like to take about three minutes to caucus here with
17 my cohorts and decide what we're going to do.

18 JUDGE BOLLWERK: All right. Very good.

19 [Counsel for APCo conferring off the record.]

20 MR. REPKA: I am ready.

21 JUDGE BOLLWERK: Let's go ahead.

22 BY MR. REPKA:

23 Q Okay Mr. Levis, do you have in front of you a
24 copy of Staff Exhibit 55? Is that handy?

25 A [Witness Levis] Yes, I have it.

1 Q Okay. And that's -- could you identify that for
2 me?

3 A [Witness Levis] It's Information Notice 83-72,
4 dated October 28, 1983.

5 Q Okay. I'm going to refer you to Attachment One of
6 that document, page 15 of 16. That's --

7 A [Witness Levis] I'm there.

8 Q -- three pages from that back. Paragraph C.4
9 there. The reference to drain plugs?

10 A [Witness Levis] Yes.

11 Q Okay. Is that the reference to T-drains you were
12 alluding to earlier?

13 A [Witness Levis] Yes, it was.

14 Q Okay. Can you read the last paragraph of that --
15 or the last sentence of that item?

16 A [Witness Levis] "It is not presently known
17 whether the existence of the drain plug or the orientation
18 of the drain hole was essential to proper operation of the
19 operator or is in conformance with the qualification test
20 for the operator."

21 Q Okay. Now, are you aware of any meetings between
22 Alabama Power Company and the NRC staff on qualification
23 issues, subsequent to the issuance of this notice?

24 A [Witness Levis] I'd heard in the testimony,
25 Tuesday, that there were a number of meetings.

1 Q Okay. Did you hear about a meeting of January
2 1984 -- January 11th, 1984, to be specific?

3 A [Witness Levis] I'm aware of that meeting in that
4 general timeframe.

5 Q Okay. But you were not at that meeting?

6 A [Witness Levis] That's correct.

7 Q Are you aware of any agreement reached during that
8 meeting between the staff and Alabama Power Company on
9 various qualification issues, and particularly, Limitorque
10 operator issues?

11 A [Witness Levis] No, I'm not.

12 Q Okay. Nobody ever told you about that?

13 A [Witness Levis] No.

14 [Counsel for APCo conferring off the record.]

15 BY MR. REPKA:

16 Q Mr. Levis, are you familiar with the Limitorque
17 internal wiring issue?

18 A [Witness Levis] Yes.

19 Q Okay. And that was -- well, you tell me, what was
20 that issue, briefly? What did it involve?

21 A [Witness Levis] That inspections have determined
22 that there were a number of different types of internal
23 wiring installed in Limitorque operators. And I believe NRC
24 put out Information Notice, and this is a guess, 86-03, that
25 addressed it.

1 Q Okay. Are you aware of how that issue was
2 resolved for enforcement purposes?

3 A [Witness Levis] The staff chose to use
4 enforcement discretion in that area.

5 Q Okay. And they chose not to take enforcement
6 action?

7 A [Witness Levis] That's correct.

8 MR. REPKA: Okay. I have no questions for the --
9 further questions at this time.

10 JUDGE BOLLWERK: Mr. Holler, redirect?

11 MR. HOLLER: Yes, sir. If we may take a 10-minute
12 break?

13 JUDGE BOLLWERK: Yes. We'll take minutes right
14 now. We'll come back at 10:00 o'clock.

15 [Brief recess.]

16 JUDGE BOLLWERK: Let's be seated and go back on
17 the record.

18 Mr. Holler, you had some redirect?

19 MR. HOLLER: Yes, sir.

20 REDIRECT EXAMINATION

21 BY MR. HOLLER:

22 Q I direct this first question to Mr. Levis.

23 Mr. Levis, in your cross examination you described
24 for Mr. Repka that you had some non-NRC/EQ experience.
25 Would you please describe what that experience was?

1 A [Witness Levis] Prior to coming to work for NRC I
2 worked for a company that did environmental qualification of
3 work and supported the nuclear utilities. My experience
4 there involved work at six different utilities, ten
5 different sites and we did work such as conducting
6 inspections and audits of licensee's EQ programs, walked-on
7 of equipment, file development and various programmatic
8 reviews.

9 Q Thank you, sir.

10 Also, in your testimony you were asked several
11 questions with reference to APCo Exhibit No. 70, which I
12 believe has been marked for identification as NUGEQ Report,
13 Clarification of Information Related to the Environmental
14 Qualification of Limitorque Motorized Valve Operators, dated
15 April, 1986. Do you have a copy of what has been marked for
16 identification as APCo's Exhibit No. 70 before you now, sir?

17 A [Witness Levis] Yes, I do.

18 Q And I ask you, that copy you have before you, does
19 that address T-drains?

20 JUDGE BOLLWERK: Let me interrupt one second here.
21 We can mark it for identification now. It has not
22 previously been put into the record.

23 I think Mr. Repka referred to it but he never
24 showed it to a witness, so I didn't require it to be marked,
25 but we may well do that at this point.

1 WITNESS LEVIS: Mr. Holler, can I supplement a
2 previous answer about experience? I guess to amplify
3 somewhat on the walked-on area, our company had developed a
4 series of what we called check sheets to describe what we
5 thought what were the critical attributes for qualification.
6 So, for equipment such as limitorque motor operated valves,
7 our checklist included such things as terminal blocks, T-
8 drains, colors of switch materials for the phenolic
9 materials in the block. We had developed this checklist in
10 the 1984 timeframe.

11 MR. HOLLER: If I may, it may help the Board, on
12 the issue of APCo Exhibit No. 70, my concern goes to what
13 the Board has as APCo Exhibit 70. Why they proffered that
14 as describing it, that may very well be true to the new
15 NUGEQ Report, but is not necessary to what has been
16 identified as APCo No. 70.

17 JUDGE BOLLWERK: We have a discrepancy between
18 what you think they're talking about and what you have; is
19 that right?

20 MR. HOLLER: Yes, sir. My concern is that the
21 witness at least is testifying with regard to those
22 questions to what we all understand to be the reporting
23 question.

24 MR. REPKA: I think there is a discrepancy. What
25 has been marked as APCo Exhibit 70 is an excerpt. And I

1 think what we need to combine is a copy of the whole report,
2 and I don't think we have that here right now.

3 JUDGE BOLLWERK: Mr. Holler, what are you
4 proposing to show the witness? Are you proposing to show
5 him APCo 70 or the entire report, I guess that is my
6 question?

7 MR. HOLLER: Yes, sir, I have proposed to show him
8 APCo 70.

9 JUDGE BOLLWERK: All right. Why don't we go ahead
10 and mark APCo 70. Is there any problem with that in terms
11 of the --

12 MR. REPKA: I have no problem with that, but just
13 to be clear that APCo 70 is not the whole report, it was a
14 wrong reference by me. The whole report has not been
15 previously marked.

16 JUDGE BOLLWERK: All right. We will go ahead and
17 mark APCo Exhibit 70 for identification.

18 [APCo Exhibit No. 70 was
19 marked for identification.]

20 BY MR. HOLLER:

21 Q Let me phrase the question this way then, Mr.
22 Levis.

23 With regard to what you recall from the NUGEQ
24 Report dated April, 1986, the answers that you gave on your
25 cross examination are to your knowledge correct?

1 A [Witness Levis] Yes, sir.

2 Q Okay. With regard to what you have before you
3 now, which has been marked for identification as APCo No.
4 70, does that document address those areas to which you
5 offered your testimony?

6 A [Witness Levis] The document in front of me does
7 not.

8 Q One other question. To the best of your
9 knowledge, Mr. Levis, did Limitorque or representatives from
10 Limitorque participate in the NUGEQ meeting that led to the
11 generation of that report which has been identified as --
12 the complete report, not the one in front of you, but the
13 complete NUGEQ Report?

14 A [Witness Levis] Looking at the document I have in
15 front of me, there is a Footnote 1 that describes the
16 members of the NUGEQ Committee, and I note that there is
17 not, a Limitorque member in that group.

18 Q I will address this question to Mr. Luehman.

19 Mr. Luehman, as a representative of the Office of
20 Enforcement, would you describe for us how the NRC addressed
21 the enforcement issue associated with internal water in
22 Limitorque that was addressed in IE 86.03?

23 A [Witness Luehman] Basically, Mr. Levis stated
24 that the Staff exercised discretion with that regard. I
25 would simply point out that the action that the staff took

1 with regard to unidentified internal wiring in Limitorque
 2 operators was sent to the Commission in a SECY paper, and
 3 the Commission approved the exercise of discretion for
 4 internal wiring and it was not a Staff decision.

5 Q Thank you, sir.

6 MR. HOLLER: I have no further questions for the
 7 panel.

8 JUDGE BOLLWERK: Mr. Repka do you have any
 9 recross?

10 MR. REPKA: Briefly.

11 RECCROSS EXAMINATION

12 BY MR. REPKA:

13 Q Mr. Luehman, but the Commission decided not to
 14 take enforcement; is that correct?

15 A [Witness Luehman] Well, they decided to not take
 16 enforcement for unidentified internal wiring and Limitorque
 17 valve operators as long as it could not be established that
 18 the licensee had, in fact, installed that wire. In other
 19 words, if a licensee -- if there were records that a
 20 licensee had installed the incorrect wire after they had
 21 received the operator, then that wire for qualification
 22 purposes, enforcement action could be taken for that.

23 Q If the licensee had installed the internal wire?

24 A [Witness Luehman] If it could be established that
 25 they did; that's correct.

1 Q But if the licensee had purchased the valve
2 operator from the vendor and not altered it, then no
3 enforcement would be taken; correct?

4 A [Witness Luehman] That is correct.

5 Q Mr. Levis, the NUGEQ Report of April 1986, setting
6 aside what had been marked as APCo Exhibit 70, the report
7 itself, is that something you had seen at the time of the
8 inspection?

9 A [Witness Levis] Yes, it was.

10 Q Okay, and you were familiar with that document?

11 A [Witness Levis] Yes, I was.

12 Q Okay, I believe earlier you told me that it was
13 something that was shown to you during the inspection by
14 Alabama Power. Am I mistaken?

15 A [Witness Levis] That's correct.

16 Q Okay, so, that was something you were familiar
17 with?

18 A [Witness Levis] Right.

19 Q It was well known in the industry.

20 A [Witness Levis] It was well known to those folks
21 who participated in the NUGEQ Group.

22 Q Okay, it was well -- was it known to you in your
23 private employment at Westec?

24 A [Witness Levis] Yes, it was.

25 Q Okay, you mentioned in the redirect testimony that

1 you had other experience at other facilities doing walkdowns
2 and EQ type inspections before you came to the NRC?

3 A [Witness Levis] That's correct.

4 Q Okay, was any of that experience at Alabama Power
5 Company?

6 A [Witness Levis] No, it was not.

7 Q So, would any of that experience have given you
8 any knowledge of resolution of issues reached between
9 Alabama Power Company and the NRC Staff?

10 A [Witness Levis] I'm not sure what you're asking
11 there.

12 Q Based on that experience, did you have any way of
13 becoming aware of how APCo may have resolved an issue with
14 the NRC Staff?

15 A [Witness Levis] No.

16 Q Okay, you had no knowledge?

17 A [Witness Levis] I had no knowledge of
18 correspondence between APCo and NRC during my private
19 employment; that's correct.

20 Q Okay, and you told me before that you were or were
21 not aware of the December 1984 SER issue to Farley?

22 A [Witness Levis] The SER was presented to the team
23 during the Farley EQ inspection, so I had seen it then.

24 Q Okay, and that SER resolved previously identified
25 deficiencies; did it not?

1 A [Witness Levis] I'm not sure that "resolved" is
2 the right word. What I remember from the SER was that we
3 had done some program review and we were going to come out
4 and inspect for your implementation at a further date.

5 Q Okay, but it had accepted the plans for resolution
6 of various issues that had been presented by the licensee.

7 MR. HOLLER: I'm going to object to that question
8 as being outside the scope of my redirect.

9 JUDGE BOLLWERK: I think we're getting a little
10 far afield here. The cross examination -- or, the redirect,
11 rather, was on the basis of what his experience was, and he
12 did indicate that he did not have experience with APCo, but
13 I don't think we talked about the SER at all. I think
14 you're being a little out of line.

15 MR. REPKA: Okay, no further questions.

16 JUDGE BOLLWERK: Anything further?

17 MR. HOLLER: I have nothing further.

18 JUDGE BOLLWERK: Questions from the Board? Judge
19 Carpenter?

20 EXAMINATION BY THE BOARD

21 JUDGE CARPENTER: Thank you. I'd like to start to
22 try and get some help from the panel. By looking at a
23 letter from Mr. Holler dated January 16, 1991, Figure 5,

24 MR. HOLLER: If it would help the Board, we have a
25 copy of that. That letter has not been offered as an

1 exhibit. I'd be happy to show that to opposing counsel, but
2 it if would facilitate Judge Carpenter's questions.

3 JUDGE BOLLWERK: Maybe we should have it marked
4 and go ahead and admit it, because since we have referred to
5 it a couple of times, it might be the easiest way to do it.

6 MR. REPKA: That's fine.

7 MR. HOLLER: I only have one. If we could take
8 five minutes -- we seem to be well ahead of schedule -- or
9 10 minutes to reproduce it, that would help Judge Carpenter,
10 or we can reproduce it later and allow the Board to use
11 our's -- or, rather, the Panel to use our copy.

12 JUDGE CARPENTER: Are you going to be
13 uncomfortable if you don't have a copy while I'm asking the
14 questions?

15 MR. REPKA: I'll survive without it.

16 MR. HOLLER: I have no problem with that, sir.

17 JUDGE CARPENTER: Fine.

18 JUDGE BOLLWERK: All right, why don't we go ahead.

19 MR. HOLLER: Let me verify with Judge Carpenter
20 that, in fact --

21 JUDGE CARPENTER: Well, Mr. Holler, I might say
22 that you can anticipate, since we asked you for what's in
23 this letter, that we'll probably use it for each of these
24 issues. I don't think that it necessarily needs to be in
25 evidence, but don't be surprised.

1 [Document proffered to the witness.]

2 JUDGE BOLLWERK: Maybe we could go ahead and mark
3 it as Staff 58; would that be --

4 JUDGE CARPENTER: I would note, to begin with,
5 this is a this is a xerox of a copy of a copy, probably of a
6 photograph, and I'd like to get the Panel's help so that the
7 Board can understand what it is we're talking about. Is it
8 true that this orientation as shown on this page, one can
9 see a hand showing a little sign that says "MOV-34418;" is
10 the long dimension of that sign horizontal or vertical;
11 would you guess?

12 WITNESS LEVIS: Horizontal.

13 JUDGE CARPENTER: Thank you. You understand my
14 problem is that I've seen a drain, but I haven't seen one of
15 these valves. You all look at them all the time, but I --
16 in the left center of this photograph, there's a cylindrical
17 object. Is that the motor?

18 WITNESS LEVIS: The motor, sir, is right under the
19 sign that says MOV-3441A, yes.

20 JUDGE CARPENTER: Right. And then it's apparently
21 bolted with a boss to what I judge to be the valve?

22 WITNESS LEVIS: To the actuator.

23 JUDGE CARPENTER: To the actuator?

24 WITNESS LEVIS: Yes.

25 JUDGE CARPENTER: Where in this photograph is this

1 electrical conduit?

2 WITNESS LEVIS: You can see the flex conduit on,
3 I'd say, the righthand side, right above -- or right in
4 front of the handwheel for the valve.

5 JUDGE CARPENTER: Right. I think I can see in the
6 photograph, a clamp. You know, the conduit slips over the
7 outside of the boss on the actuator housing or not?

8 WITNESS LEVIS: I am not sure if that would be
9 that clamp or not. Are you talking to the one that's going
10 vertical here right above the other flex?

11 JUDGE CARPENTER: Yes.

12 WITNESS LEVIS: I wouldn't expect that to be a
13 clamp.

14 JUDGE CARPENTER: What holds the conduit on?

15 WITNESS LEVIS: It is a fitting -- NPT-type
16 fitting that actually screws into the actuator housing.
17 There's two pieces of conduit in this case. You can see one
18 is running horizontally.

19 JUDGE CARPENTER: Right.

20 WITNESS LEVIS: And you get a better picture of
21 that fitting in that case.

22 JUDGE CARPENTER: So, it's a threaded connection?

23 WITNESS LEVIS: Yes.

24 JUDGE CARPENTER: So, when you say it's unsealed,
25 you mean that there's no packing in the threads?

1 WITNESS LEVIS: Well, there are some pieces of
2 equipment -- when we refer to a conduit seal, we mean that
3 there's physically some material inside of that conduit that
4 would prevent water from, you know, passing through it --
5 passing beyond it. So, that could be a plug or any type of
6 mechanical device. So, the seal is internal to the conduit,
7 itself.

8 JUDGE CARPENTER: For the Design Basis Accident
9 application that we're considering here, for what period of
10 time would you expect this to be subjected to spray?

11 WITNESS LEVIS: It depends on a particular plant.
12 It could be one hour, three hours or one day, depending on a
13 particular design of the facility.

14 JUDGE CARPENTER: So, up to one day perhaps?

15 WITNESS LEVIS: Perhaps.

16 JUDGE CARPENTER: Do you know of any observations
17 of how much water can accumulate in the valve with one day
18 of spray?

19 WITNESS LEVIS: I could probably do some
20 calculations. But, it's my estimation it would be a
21 significant -- somewhat depends on where the conduit is
22 located also, with respect to the spray nozzles. If it's in
23 an area that the spray nozzles are directly put in water,
24 where the conduit comes down from a cable tray, for example,
25 it could be significant.

1 JUDGE CARPENTER: Well, you run me ahead a little
2 bit. Where, in containment, with respect to the spray
3 nozzles are the valves that are in question here located?

4 WITNESS LEVIS: I don't have an answer to that.
5 That was a question that was asked during the inspection.
6 And that was why we talked about configuration differences,
7 between the tested and the installed case. And it wasn't an
8 item that was addressed by APCo.

9 JUDGE CARPENTER: Doesn't it seem surprising to
10 you that a number of years have gone by and there really
11 isn't any definitive evidence with respect to these trains,
12 based on experimental observation of how much water gets in
13 in a day?

14 WITNESS LEVIS: I'm not sure what we're --

15 JUDGE CARPENTER: Are we talking about 1 cc, 10
16 cc's, 100 cc's?

17 WITNESS LEVIS: Sir, I'm still not sure what
18 you're asking.

19 JUDGE CARPENTER: Well, apparently, there's still
20 some uncertainty apropos of the notice, I believe 1983,
21 where it wasn't clear wether the drains were necessary or
22 not. And I think the evidence for that might be a test to
23 see how much water gets in it.

24 WITNESS LEVIS: And those tests that were
25 available were what we reviewed when we did the inspection

1 at Alabama Power and other facilities. And it's not clear
2 from the test how much water gets in the motor or the
3 actuator itself.

4 JUDGE CARPENTER: There was no observation of it?

5 WITNESS LEVIS: There was no recording of we got
6 this many cc's of water or anything to that effect.

7 JUDGE CARPENTER: If the water enters an actuator
8 compartment, will it move over to the motor?

9 WITNESS LEVIS: Yes. Well, the motor -- the leads
10 themselves, would have to run down in the motor. And
11 there's an opening, of course. In this compartment here you
12 see where the water would travel down in through the motor.
13 And, in fact, during the test that's what Limitorque states
14 happened -- that the configuration that they had was such
15 that when water entered into the actuator, it would, in
16 fact, drain out through the motor. So, there is a pathway,
17 yes where water will get to the motor from the conduit
18 entrance.

19 JUDGE CARPENTER: Was that configuration similar
20 to this, in the sense that the motor and the actuator were
21 essentially horizontal?

22 WITNESS LEVIS: The difference in the test was
23 that the switch compartment, itself, which is what you see
24 on the right-hand side where it says Limitorque, was in the
25 up position, so that the motor was essentially at the low

1 point. So, it was a different plane than in this
2 application.

3 JUDGE CARPENTER: So, it has no pertinence to this
4 orientation, right? Would you think with this orientation
5 by inspection that the water would drain out through the
6 motor?

7 WITNESS LEVIS: I'd have to look at the inside to
8 see how the wires or the motor leads go to the motor
9 housing. But, certainly it could. It could also accumulate
10 in the bottom of the switch compartment in this
11 configuration. But, if it gets to a level there, where it
12 gets to the opening of motor, then, in fact, could come out
13 through the T-drains and the motor.

14 JUDGE CARPENTER: What components in the -- did
15 you call it the switch compartment, would be damaged by
16 immersion?

17 WITNESS LEVIS: The switch compartment has a
18 torque switch, limit switch and also the terminal block
19 inside of it, and also the internal wiring that we had
20 referred to before.

21 JUDGE CARPENTER: This T-drain that's at issue can
22 be installed in the bottom of this switch box?

23 WITNESS LEVIS: No. It's configured to be
24 installed in the bottom of the motor.

25 JUDGE MORRIS: Is that noted in this illustration?

1 WITNESS LEVIS: No, it's not. Basically, the
2 motor comes with -- it will be installed on about the left-
3 hand side of this motor here is where that little plug that
4 you'd seen before would be installed.

5 So, therefore you could tell from there that, you
6 know, the water in this switch compartment, therefore could
7 come up to about this level.

8 JUDGE CARPENTER: I'm sorry. For the record,
9 could you say it's 10 percent, 25 percent, 50 percent of the
10 distance between the bottom and the top of the motor
11 housing?

12 WITNESS LEVIS: 25 percent.

13 JUDGE CARPENTER: All right. In the cases where
14 the water did leak out of the motor housing, where -- from
15 what point did it leak?

16 WITNESS LEVIS: From the T-drain itself.

17 JUDGE CARPENTER: I thought you said Limitorque
18 said that without the T-drains that it leaked out through
19 the motor. Maybe I misunderstood.

20 WITNESS LEVIS: No. I don't think I said that.

21 JUDGE CARPENTER: Sorry. I misunderstood.

22 In your testimony, you point out that there were a
23 couple of tests of this motor operator. In one case, the
24 motor had Class H insulation. Perhaps, Mr. Merriweather, I
25 note you have a Masters Degree from Georgia Tech in

1 Electrical Engineering, maybe you could help me with what's
2 Class H?

3 WITNESS MERRIWEATHER: Well, class -- I don't
4 really know exactly what Class H is. I'd have to look up
5 the standard to find out. But, the motor manufacturer has a
6 spec on his design for his windings and the insulation that
7 he puts on his windings is -- what be a Class H or either
8 Rad H -- I think actually it may be Rad H for the report
9 we're talking about. I'm not really certain, but I think it
10 is Rad H. And there may be a difference between Rad H and
11 just Class H.

12 JUDGE CARPENTER: In the testimony, there are two
13 tests referred to.

14 WITNESS MERRIWEATHER: Right.

15 JUDGE CARPENTER: One is with Class H and one is
16 with Class --

17 WITNESS MERRIWEATHER: Or RH.

18 JUDGE CARPENTER: -- RH?

19 WITNESS MERRIWEATHER: Right.

20 JUDGE CARPENTER: Is there significant difference
21 between those two classes?

22 WITNESS MERRIWEATHER: Well, I really don't know
23 because I haven't looked at the specs. But, basically,
24 there are some differences in insulation. And you would
25 actually have to look at the actual spec for the insulation,

1 because the manufacturer may have changed his process.

2 So, the differences of RH may be that we have more
3 data in terms of radiation and aging data on RH insulation
4 versus the Class H insulation, which we have some data, but
5 I don't really know what that is right now, because I'm not
6 very familiar with it. But both of these have been
7 qualified for inside containment environments where they see
8 high radiation.

9 JUDGE CARPENTER: Well, Mr. Levis, you testified
10 during cross examination just sort of in passing that it was
11 your opinion that moisture would have a deleterious effect
12 on any electrical motor. Do you recall that?

13 WITNESS LEVIS: Perhaps "any electric motor" is a
14 little too strong, but it's my opinion, yes.

15 JUDGE CARPENTER: Well, that's what I'm groping
16 with. I've used a number of submersible pumps and put them
17 in really severe environments called the ocean, and they
18 function pretty well. That's what I was trying to get at.

19 What does this designation of Class H tell us --

20 WITNESS LEVIS: Basically --

21 JUDGE CARPENTER: -- about the environmental
22 qualification of the motor?

23 WITNESS LEVIS: Class H doesn't tell you anything
24 about the environmental qualification of the motor. It's
25 basically, you know, standard industry nomenclature for the

1 temperature withstand capabilities of the insulation itself.

2 In the case of limitorque, they had not qualified
3 a motor operator for submerged applications yet. There may
4 be some work going on in this area that I'm not certain of,
5 but for submergence, we don't have a qualification test that
6 demonstrates that the limitorque will work in that
7 environment.

8 JUDGE CARPENTER: I wasn't suggesting that these
9 particular motors would necessarily be applicable to a
10 submerged motor, but I was trying to find out. From my
11 perspective, there is a range of sensitivities --

12 WITNESS LEVIS: Yes, sir.

13 JUDGE CARPENTER: -- and I'm trying to get a feel
14 for where these motors are, whether the design anticipates
15 that they are going to be operated in a harsh environment in
16 terms of the class of insulation that's used in the motor.

17 WITNESS MERRIWEATHER: Yes, sir, it does, and the
18 harsh environment that we're referring to has to do with
19 temperature, pressure and radiation, but not submergence.

20 JUDGE CARPENTER: Well, the RH, Mr. Merriweather,
21 do you suggest that that may indicate that that motor has
22 been qualified to a greater extent than the Class H?

23 WITNESS MERRIWEATHER: Well, I can't tell you
24 exactly what the spec says for Class H versus RH.

25 JUDGE CARPENTER: Yes.

1 WITNESS MERRIWEATHER: But basically, the newer
2 motors, and this is the knowledge I have about it, the newer
3 motors have Class RH insulation. So there is a change in
4 the manufacturing process. They change insulation type.

5 Now, as far as I know, RH insulation is qualified
6 for high temperature, pressure, steam environment, okay?
7 That's not submergence now. That's not sitting under water.

8 JUDGE CARPENTER: Steam environment.

9 WITNESS MERRIWEATHER: Steam environment. And
10 also, the materials have been radiation aged, so we have a
11 lot of data on the properties of this insulation material
12 for radiation. I think that's what you will find when you
13 look at a lot of the test reports for the different motor
14 manufacturers. Typically, outside containment, you find
15 Class B insulation, which is a lower class.

16 JUDGE CARPENTER: Okay. I just was trying to get
17 some feel --

18 WITNESS MERRIWEATHER: Right.

19 JUDGE CARPENTER: -- of what the significance of
20 specifying that grade was in your testimony.

21 Finally, it's not necessary for NRC to know of all
22 the test failures, but by any chance do any of the three of
23 you know of a test of a motor operator without a T-drain
24 with a 30-day duration in which failure occurred?

25 WITNESS LEVIS: I'm not aware of a 30-day test on

1 a limitorque operated value for these conditions.

2 JUDGE CARPENTER: It's amazing when you think of
3 what the test would cost vis-a-vis litigating not only with
4 Alabama Power, a lot of licensees, over this issue for lack
5 of definitive testing.

6 Thank you.

7 JUDGE BOLLWERK: At this point, given the
8 discussion that took place regarding the document, let's go
9 ahead and mark it as an exhibit. I'll go ahead and identify
10 it. It's a letter from Mr. Holler to the Board dated
11 January 16th, 1991, and it includes a number of attachments,
12 including a chart with item descriptions of purpose --
13 descriptions of the items involved in this litigation and
14 their functions, and some diagrams. We'll go ahead and mark
15 that, if you don't have an objection, Mr. Holler, as Staff
16 Exhibit 58.

17 MR. HOLLER: The only thing I would, if I may,
18 point out to the Board is that, although submitted by me,
19 that was a submission made on behalf of the parties to the
20 Board at the Board's request.

21 JUDGE BOLLWERK: That's correct. Okay. I think
22 January 16th, 1991 is the date of the letter. We'll go
23 ahead and mark that for identification as Staff Exhibit
24 Number 58.

25

1 [Staff Exhibit Number 58 was
2 marked for identification.]

3 JUDGE BOLLWERK: We'll take care of the copies.
4 Maybe at the next break, we can do that.

5 MR. HOLLER: Yes, sir.

6 JUDGE BOLLWERK: Judge Morris, do you have any --
7 are you finished, Judge Carpenter?

8 JUDGE CARPENTER: Yes.

9 JUDGE BOLLWERK: Judge Morris, do you have any
10 questions?

11 JUDGE MORRIS: Gentlemen, I may be heading out on
12 thin ice a little bit, but due to the peculiar structure of
13 this proceeding, we don't have staff rebuttal testimony on
14 the licensee's testimony yet. So we're in the dark as to
15 what you're going to say about some of the things that they
16 have already put into direct testimony.

17 Within the context of this particular issue, I
18 believe there is reference made to the credit one might take
19 for engineering judgment as opposed to documentation, and it
20 leaves me in a real uncertain area as to whether there is a
21 controversy between the licensee and the staff, and whether
22 engineering judgment is permitted under some conditions and
23 not others.

24 Let me give you an example. A piece of equipment
25 which has been qualified by the supplier arrives at the

1 site, and normally, I understand, there is an acceptance
2 inspection or some procedure to determine that the piece of
3 equipment is as advertised when the licensee said that he
4 wanted to buy it.

5 Can that inspection be visual and a judgment made
6 that it's okay and then nothing put in writing? Would this
7 be an acceptable procedure, or should there -- could you,
8 for example, cite the licensee for no documentation of its
9 acceptability?

10 WITNESS LUEHMAN: Well, sir, that really gets into
11 the -- the latter part of that question gets into the area
12 of equipment procurement, and under that, in that area, the
13 licensee has certain responsibilities as well as the
14 supplier.

15 The supplier has to provide various
16 certifications, if we're talking about something that's
17 going to be used in the nuclear application, various
18 certifications that the equipment is as they represent it to
19 be.

20 The licensee is under -- there are requirements
21 for the licensee to check that equipment, including the
22 documentation that comes with it, to the extent necessary,
23 and obviously to the extent that's possible.

24 Obviously, if you get a sealed piece of equipment
25 and the seal is extremely important for maintaining the

1 qualification or for other reasons that you wouldn't want to
2 open it, then obviously the licensee has to place a lot of
3 importance on the information represented by the vendor or
4 supplier of that equipment.

5 I would go back and say that, prior to doing all
6 this, before a licensee can have a particular company as a
7 vendor of nuclear-grade equipment, they must -- that company
8 must have a program, and I'm talking in today's terms
9 because back in the '70s, this didn't exist, but under 10
10 CFR Part 50, Appendix B, the vendor must have a program that
11 meets that, and that provides the licensee some assurance
12 that the equipment is being manufactured at the vendor in
13 the proper manner, that when they get a certificate from the
14 vendor, that there is some assurance that it's being
15 represented to them as proper; therefore, they can, in some
16 cases, as I alluded to, accept it purely on the receipt of a
17 certificate. In other cases where it is acceptable, it's
18 expected that the licensee will do spot checks of the
19 equipment and maybe take one out of a lot and test it
20 themselves.

21 Those kind of criteria are very subjective to the
22 type of equipment, and how large it is, and how expensive it
23 is, and how well their program has been inspected by the
24 licensee at their manufacturing facility. So there are a
25 lot of things that go into that.

1 I would point out that much of the equipment that
2 licensees receive, especially if we get to the particulars
3 of this case, that obviously the vendor is not going to be
4 knowledgeable of the orientation or how this exact equipment
5 is hooked up. For instance, how a Limitorque operator is
6 terminated in the plant, the orientation that is put in, and
7 therefore the Limitorque for these operators supplies the T-
8 drains -- in the general case -- supplies the T-drains in a
9 little package along with the operator so that the licensee
10 or company that is receiving it, once they put it in in the
11 orientation they can install the T-drain in the lowest point
12 on a motor because obviously the manufacturer couldn't do
13 that and they wouldn't have knowledge of where it is going
14 to go.

15 JUDGE MORRIS: You have given r. some specifics,
16 but you haven't touched on my general concern of how
17 engineering judgment can be factored in.

18 WITNESS LUEHMAN: Okay, getting to engineering
19 judgment, obviously the NRC does accept engineering
20 judgment. I will talk in specific to you on Limitorque
21 operators. I think that in the cross examination Mr. Repka
22 represented that the various operators without T-drains had
23 been accepted at other plants by the NRC staff in various
24 applications without T-drains. As a member of the EQ Review
25 Panel I would say that that is a true statement. Many of

1 the plants where that was done the licensee had done
2 analysis based on their particular plant profile, the
3 particulars of the operator with regard to the material
4 construction and its orientation and a lot of the things
5 that we talked about and had a documented analysis, or to
6 some extent a documented analysis of why T-drains were
7 acceptable or why the absence of T-drains was acceptable in
8 their particular location.

9 In some cases they produced that analysis during
10 the inspection. By and large, the NRC found that if they
11 didn't have T-drains installed in the applications that they
12 should have been and didn't have the analysis available, we
13 considered it a violation under the modified policy because
14 we felt that it met the "clearly should have known" finding.
15 That is not to say that in every case we determined that it
16 was significant enough for enforcement purposes, for
17 escalated enforcement purposes, because the licensee had
18 exercised engineering judgment, had documented the
19 engineering judgment to the extent that they had exercised
20 it and upon our review, however, we found some areas that
21 had not been covered by the licensee.

22 So, the Staff does accept engineering judgment.
23 Unless it is something very obvious, however, when you make
24 an engineering judgment, it is the Staff's position that
25 undocumented engineering judgment or after the fact

1 engineering judgment where a licensee hears the Staff's
2 concern and then retroactively tries to fit together an
3 argument to address that concern, we don't accept because
4 the big pitfall for undocumented engineering judgment is if
5 Engineer A makes an engineering judgment of why something is
6 acceptable because it has got a particular attribute and it
7 is acceptable for this application, and then Engineer A
8 leaves and Engineer B comes in with another concern in
9 another area. Maybe not environmental qualification, maybe
10 seismic qualifications or operational qualifications and
11 says, why is this attachment here? I don't need it for my
12 application. If he looks at the record, he doesn't know
13 that Engineer A needed that thing there because Engineer A
14 didn't document it, and therefore he basically takes it out,
15 thereby voiding the assumptions Engineer A made that this
16 thing would be there. And in both cases, the judgments they
17 made may have been perfectly logical for what they were
18 doing, however, without documenting that fact, you risk the
19 problem of people that follow on from the person that made
20 the first judgment, not knowing that judgment and
21 unwittingly void it at some time down the line.

22 JUDGE MORRIS: Thank you, Mr. Luehman, I think
23 that gives me some perspective. I am sure we will revisit
24 this particular concept.

25 That's all I have.

1 JUDGE BOLLWERK: I have just a couple of brief
2 questions.

3 In this instance -- I guess I have asked this
4 question before, and any member of the panel can answer it,
5 in terms of the "clearly knew" or "should have known"
6 standard, what was the focus of the Staff's findings in that
7 regard?

8 WITNESS LUEHMAN: Well, I guess I will start the
9 answer and the other members can add in.

10 Basically, our "clearly should have known" finding
11 rests on the words from the company that produced the
12 operator that said specifically in that Section 6 of Staff
13 Exhibit 54, that the T-drains, along with some other
14 attributes were specifically added to the operators so they
15 could perform -- were added to the inside containment
16 operators, so that they could perform in a design basis
17 accident environment.

18 Further, information 83-72, along with many other
19 concerns, alerted the industry in 1983, still two and a half
20 years prior to the deadline, that these T-drains were
21 necessary, or potentially necessary for the qualification of
22 the operator. Obviously, I think we feel that the NRC
23 couldn't get much more specific than that, but it put the
24 licensees on notice because we were not aware in an
25 Information Notice or we could not put out in an Information

1 Notice all of the possible configurations and all of the
2 variables. But that did clearly put licensees on notice
3 that this was a concern. So, I think that primarily those
4 two documents form our basis for that conclusion.

5 WITNESS LEVIS: If I could add just one other
6 thing. That Information Notice also talked about the
7 terminal block issue that was discussed this morning.

8 JUDGE BOLLWERK: So, that would be the genesis as
9 well of the "clearly should have known" in terms of the
10 terminal blocks?

11 WITNESS LEVIS: Yes, sir.

12 JUDGE BOLLWERK: I have nothing further. Anything
13 else from either of the Board members?

14 Judge Carpenter, you are looking as if you have
15 some --

16 JUDGE CARPENTER: Excuse me. It is sort of like
17 eating peanuts.

18 I am sitting here looking at this photograph of
19 this motor and the operator. If the motor is sealed up, how
20 do they get any cooling to the motor? Is there any flow of
21 air through the motor or does it just operate inside this
22 can?

23 WITNESS LEVIS: I am not sure, you know -- these
24 are intermittent-duty motors. So they're not operated
25 continuously. So --

1 WITNESS MERRIWEATHER: They're not rated for
2 continuous duty.

3 JUDGE CARPENTER: All right. Thank you.

4 JUDGE BOLLWERK: All right. We will then excuse
5 this panel. I think all members will be back on a different
6 issue. And I think you have some exhibits you wish to move
7 into evidence?

8 MR. HOLLER: Yes, sir, I do.

9 At this time I move, I would like to move
10 evidence what has been previously identified as Staff
11 Exhibit 52. And let me ask: Shall I identify these in the
12 beginning for the record?

13 JUDGE BOLLWERK: You won't need to identify them
14 again.

15 MR. HOLLER: Staff Exhibit 52, Staff Exhibit 53,
16 Staff Exhibit 54, Staff Exhibit 55 -- and what has been
17 identified during the testimony as Staff Exhibit 58.

18 JUDGE BOLLWERK: Why don't we hold off on 58 until
19 we get the copies up here. We can do that later. Just --
20 as a general rule, we prefer, if we don't have enough
21 copies, to wait and move it in when we have the copies.

22 So we're talking about 52 through 55?

23 MR. HOLLER: Correct.

24 JUDGE BOLLWERK: Mr. Repka?

25 MR. REPKA: We have no objection to any of those.

1 JUDGE BOLLWERK: All right. Let the record
2 reflect that Staff Exhibits 52 through 55 have been received
3 in evidence.

4 [Staff Exhibits 52, 53,
5 54 and 55 were received
6 into evidence.]

7 JUDGE BOLLWERK: At this point we can take a short
8 break, or do you want to move to the next panel?

9 MR. HOLLER: If we may go off the record for a
10 second to talk about the logistics of today. It may
11 facilitate things.

12 JUDGE BOLLWERK: Why don't we do that. We'll go
13 off the record.

14 [Discussion off the record.]

15 JUDGE BOLLWERK: Back on the record.

16 Let's take a short recess.

17 [Brief recess.]

18 JUDGE BOLLWERK: Please be seated and we'll go
19 back in session. I think we're ready now for the Staff
20 Panel on Gems Level Transmitters.

21 MR. HOLLER: Yes, sir. The Panel on behalf of the
22 NRC Staff concerning Gems Level Transmitters is seated. The
23 members of this panel have all been previously sworn in.

24 JUDGE BOLLWERK: They remain under oath.
25

1 Whereupon,

2 WILLIAM LEVIS,

3 CHARLES PAULK,

4 AND JAMES G. LUEHMAN,

5 called as members of a Panel on Gems Level Transmitters by
6 the NRC, and, having been previously duly sworn, resumed the
7 witness stand, continued to be examined and continued to
8 testify as follows:

9 DIRECT EXAMINATION

10 BY MR. HOLLER:

11 Q I'll ask each of the members of the Panel, if they
12 will, in turn, state their name and present position?

13 A [Witness Paulk] Charles Jasper Paulk, Jr.,
14 Reactor Inspector, Region IV.

15 A [Witness Levis] William Levis, Senior Resident
16 Inspector, Davis Besse.

17 A [Witness Luehman] James G. Luehman, Senior
18 Enforcement Specialist, Office of Enforcement.

19 Q I'll ask the Panel, do each of you have in front
20 of you, a document entitled Testimony of William Levis,
21 Charles Paulk and James G. Luehman on Behalf of the NRC
22 Staff Concerning Gems Level Transmitters?

23 A [Witness Paulk] Yes, sir.

24 A [Witness Levis] I do.

25 A [Witness Luehman] I do.

1 Q Did each of you participate in the preparation of
2 this document?

3 A [Witness Paulk]" Yes, sir.

4 A [Witness Levis] I did.

5 A [Witness Luehman] Yes, I did.

6 Q At this time, I'll ask if there are any
7 corrections to the document regarding the Gems Level
8 Transmitters?

9 A [Witness Levis] Yes, there are some typographical
10 errors we'd like to correct, please. On page 3, in answer
11 to Question No. 6, we reference silicon oil in two cases,
12 and it should be silicone oil.

13 Q Would you please point out to the Board on what
14 lines they are?

15 A [Witness Levis] Okay, the third line down in
16 Question 6 and the 6th line down in Question 6. On page 5,
17 in answer to Question No. 10, the first line to that answer,
18 silicone versus silicon. On page 6, in answer to Question
19 No. 12, second line of that answer, once again, silicone
20 versus silicon. Those are the only changes that we have to
21 offer.

22 Q With those corrections made, I'll ask each of you
23 if the document, Testimony of William Levis, Charles Paulk
24 and James G. Luehman on Behalf of the NRC Staff Concerning
25 Gems Level Transmitters is true and correct, to the best of

1 your knowledge and belief?

2 A [Witness Paulk] Yes, it is.

3 A [Witness Levis] It is.

4 A [Witness Luehman] Yes, it is.

5 MR. HOLLER: At this point, I move to bind the
6 Testimony of William Levis, Charles Paulk and James G.
7 Luehman on Behalf of the NRC Staff Concerning Gems Level
8 Transmitters into the record as if read.

9 JUDGE BOLLWERK: Any objection?

10 MR. HANCOCK: No objection.

11 JUDGE CARPENTER: Have the corrections that you
12 mentioned been made in the testimony that's going to be
13 bound into the record that you've given the Reporter?

14 MR. HOLLER: The copies of the testimony given to
15 the Reporter reflect the corrections

16 JUDGE BOLLWERK: All right, then the testimony of
17 Mr. Levis, Mr. Paulk and Mr. Luehman regarding Gems Level
18 Transmitters will be bound into the transcript.

19 [The Direct Testimony of William Levis, Charles
20 Paulk, and James G. Luehman on Behalf of the NRC Staff
21 Concerning Gems Level Transmitters follows:]

22

23

24

25

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 LEVIS,
CHARLES PAULK AND JAMES G. LUEHMAN
ON BEHALF OF THE NRC STAFF CONCERNING GEMS LEVEL TRANSMITTERS

Q1. State your full name and current position with the NRC.

A1. William Levis, Senior Resident Inspector, Davis Besse Nuclear Power Station.

Charles Paulk, Reactor Inspector, Plant Systems Section, Division of Reactor Safety,
Region IV.

James G. Luehman, Senior Enforcement Specialist, Office of Enforcement.

Q2. Have you prepared a copy of your Professional Qualifications?

A2. (All) A copy of each of our Professional Qualifications is included in Staff Exh. 1.

Q3. What is the purpose of your testimony?

A3. (All) The purpose of our testimony is to support the Staff's position regarding certain of the violations of the environmental qualification (EQ) requirements for the GEMS level transmitters at the Farley nuclear plant as set forth in the Notice of Violation

(NOV), dated August 15, 1988 (Staff Exh. 2), and the Order Imposing a Civil Penalty), dated August 21, 1990 (Staff Exh. 3).

Q4. What are the EQ requirements that the Staff alleges were violated?

A4. (All) The EQ requirements and the nature of the violations are stated in the NOV (Staff Exh. 2), pages 2 and 3, under the heading "Violations Assessed A Civil Penalty" (Violation I.C.3) as follows:

10 CFR 50.49 (f) and (j), respectively, require in part that (1) each item of electric equipment important to safety shall be qualified by testing of, or experience with, identical or similar equipment, and the qualification shall include a supporting analysis to show that the equipment to be qualified is acceptable, and (2) a record of the qualification of the electric equipment shall be maintained in an auditable form to permit verification that the required equipment is qualified and that the equipment meets the specified performance requirements under postulated environmental conditions.

Contrary to the above, from November 30, 1985 until the time of the inspection which was completed on November 20, 1987:

3. APC [Alabama Power Company] found wide range and narrow range containment sump level transmitters, on both units, in a configuration for which existing test data did not demonstrate qualification. Specifically, one or more of the GEMS type level transmitters did not contain the required silicone oil in the housing, and/or wires were terminated using an unqualified V-type tape splice configuration.

Q5. What was your role, if any, in the November 1987 inspection referenced in the NOV?

A5. (Levis) I participated in the EQ inspection at Farley Nuclear Plant which was completed on November 20, 1987. I was a member of the team and participated in the documentation review and walkdown portions of the inspection.

(Paulk) I participated in an inspection at the Farley Nuclear Plant that was completed on November 20, 1987. I reviewed documents to determine the status of qualification for some components, I reviewed documents to determine what configuration they were qualified in, and I performed visual inspections of components to determine if they were installed in the configuration they were tested. In regards to the GEMS sump level transmitters, I reviewed the documentation to determine the tested configuration.

Q6. What do you recall regarding the information you reviewed to support qualification of GEMS level transmitters used at Farley?

A6. (Levis) The documentation in the file would have been sufficient had field conditions matched those specified in the file. During field walkdown of Unit 2 wide range sump level transmitter I noticed that there was no silicon^eoil in the junction box as required by the file. Therefore, the thermal and radiation aging effects for susceptible materials including lead wires, terminal block and resistor were not evaluated since the file assumed there these materials were immersed in silicon^eoil. The lack of fluid also prevented the conduit entrance from being sealed. The deficiency was discovered by me in the company of an Alabama Power Company (APCo) employee during the walkdown of Unit 2 wide range sump level transmitters. APCo, in subsequent inspections, found that the oil level was below the terminal block in other GEMs level transmitters and that some of the connections were made with a V-type taped splices.

(Paulk) I reviewed the documentation for the GEMS sump level transmitters to determine the installation configuration. I found that the transmitters were not installed in accordance with the tested configuration.

Q7. What were the Staff findings regarding qualification of GEMS level transmitters?

A7. (Levis and Paulk) We found that not all the transmitters were installed in accordance with the tested configuration. We discovered that the silicone oil was missing for one transmitter. APCo, in subsequent inspections, discovered that the oil level was below the terminal block in others and that some of the connections were made with a V-type taped splices. Neither of these configurations were included in the documentation. Therefore, the thermal and radiation aging effects for susceptible materials were not evaluated since the file assumed these materials were immersed in silicon oil.

Q8. What was your role in the preparation of the Inspection Report?

A8. (Levis and Paulk) We prepared, among other things, input for Section 6.i.(1) of Inspection Report 50-348, 364/87-30 (Staff Exh. 12). Our findings, which we adopt as part of our testimony, are as follows:

(i) GEMS Delavel Level Transmitters

[Levis] During the review of the GEMS level transmitters qualification file, model XM-36495, it was noted that thermal and radiation aging effects were not evaluated for all susceptible materials. Specifically, the lead wires, terminal block and resistors were not evaluated for these transmitters. The file stated that it was not necessary to evaluate the effects for those materials since the materials were immersed in silicone oil which would protect them from age related affects. [Both] It was

noted during the walkdown of the wide range sump level transmitters in Unit 2 that there was no silicone oil in the junction box as required. The assumption that the materials won't experience these affects is invalid based on our physical inspection. This item was left as unresolved and is listed as Unresolved Item 50-348, 364/87-30-05, Inadequate Materials Evaluation for GEMS Level Transmitters.

The licensee found wide range and narrow range containment sump level transmitters, on both units, in a configuration that was not considered qualified by existing test data. Specifically, one or more of the GEMS type level transmitters did not contain the required silicone oil in the housing, the conduit opening was not sealed and/or wires were terminated using an unqualified V-type tape splice configuration. This is considered a violation of 10 CFR 50.49 and it is identified as Violation 50-348, 364/87-30-06.

- Q9. What NRC regulation or regulations provide the basis for the Staff to determine that the deficiencies described were an EQ violation?
- A9. (Levis and Paulk) 10 C.F.R. § 50.49(f) requires the testing of identical components or the testing of similar components with supporting analysis. Not all the transmitters were installed in accordance with the tested configuration.
- Q10. Why should APCo have been aware that the deficiencies the Staff has identified were a concern for the qualification of the GEMS level transmitters used at Farley?
- A10. (Levis) The file required that silicon^e oil be installed in the transmitter housing. APCo would have known about this deficiency had their installation instructions or maintenance procedures been adequate.

noted during the walkdown of the wide range sump level transmitters in Unit 2 that there was no silicone oil in the junction box as required. The assumption that the materials won't experience these affects is invalid based on our physical inspection. This item was left as unresolved and is listed as Unresolved Item 50-348, 364/87-30-05, Inadequate Materials Evaluation for GEMS Level Transmitters.

The licensee found wide range and narrow range containment sump level transmitters, on both units, in a configuration that was not considered qualified by existing test data. Specifically, one or more of the GEMS type level transmitters did not contain the required silicone oil in the housing, the conduit opening was not sealed and/or wires were terminated using an unqualified V-type tape splice configuration. This is considered a violation of 10 CFR 50.49 and it is identified as Violation 50-348, 364/87-30-06.

- Q9. What NRC regulation or regulations provide the basis for the Staff to determine that the deficiencies described were an EQ violation?
- A9. (Levis and Paulk) 10 C.F.R. § 50.49(f) requires the testing of identical components or the testing of similar components with supporting analysis. Not all the transmitters were installed in accordance with the tested configuration.
- Q10. Why should APCo have been aware that the deficiencies the Staff has identified were a concern for the qualification of the GEMS level transmitters used at Farley?
- A10. (Levis) The file required that silicone oil be installed in the transmitter housing. APCo would have known about this deficiency had their installation instructions or maintenance procedures been adequate.

Q11. Describe the components or systems affected by the GEMS level transmitters used at Farley that you determined had a deficient qualification file.

A11. (All) The containment sump level indication is used to identify a loss of coolant accident or other accident that would cause the containment sump to fill with water and to verify that containment water level is adequate to provide net positive suction head for pumps taking suction on the containment sump in the recirculation mode after the refueling water storage tank has reached a prescribed level.

Q12. Describe your participation in any enforcement conferences or other meetings with APCo regarding this violation.

A12. (Levis and Paulk) We attended the enforcement conference. We do not remember any additional information being brought up by APCo about the silicon^e oil issue.

Q13. What, if any, APCo analysis regarding this alleged violation was considered before citing APCo for a violation involving GEMS level transmitters?

A13. (Luehman) March 1988 was the first time APCo discussed that Bechtel analysis indicated the transmitters were qualified with low oil level. That analysis was provided to the NRC in May 1988. Because APCo obtained the analysis after the inspection and because the analysis was significant, the Staff, under the guidance in the Modified Enforcement Policy (Staff Exh. 4), did not consider the additional analysis in making an enforcement determination.

Q14. Describe how you determined that this violation, under the provisions of the Commission's Modified Enforcement Policy, was sufficiently significant, standing alone, to be considered for escalated enforcement?

A14. (Luehman) Sufficient data did not exist and was not developed during the inspection to demonstrate qualification for the configuration of certain wide and narrow range containment sump level transmitters. Farley. Because this was more than a minor file deficiency it meets the criteria for escalated enforcement under the Modified Enforcement Policy (Staff Exh. 4).

Q15. Does this complete your testimony regarding this matter?

A15. (All) Yes.

1 MR. HOLLER: If it please the Board, the panel on
2 Gems Level Transmitter is ready for cross examination.

3 JUDGE BOLLWERK: Mr. Hancock.

4 CROSS EXAMINATION

5 BY MR. HANCOCK:

6 Q Mr. Luehman, I will direct this question to you.

7 Doe.n't the issue regarding Gems Transmitters, the
8 fact that there was a low level of silicone oil in these
9 transmitters?

10 A [Witness Luehman] That is correct.

11 Q But for this low level of oil, these transmitters
12 were qualified; isn't that correct?

13 A [Witness Luehman] Well, I can state that in the
14 files that Alabama Power had, they had a qualification file
15 for a transmitter that was full of the oil, and that was the
16 qualified configuration.

17 Q All right. Now, Mr. Levis, in your testimony on
18 Page 3, answer to Question 6, you said, "the documentation
19 in the file would have been sufficient had field conditions
20 matched those specified in the file"; isn't that correct?

21 A [Witness Levis] Yes, it is.

22 Q So, isn't this really a maintenance issue rather
23 than a documentation issue? The documentation was there, it
24 was the fact that there were low levels of silicone oil due
25 to either leakage or the fact that a maintenance worker

1 didn't put in the appropriate level, something like that?
2 This is more of a maintenance type issue than an actual
3 documentation or qualification issue?

4 A [Witness Levis] I think it is important here to
5 recognize that it doesn't matter how many pieces of paper
6 you have, if the equipment in the field still doesn't match
7 what is required, it is not going to perform its function.

8 Q Now, do you know how many transmitters had this
9 low level of oil?

10 A [Witness Levis] I know one in particular that had
11 no oil in it. It wasn't just low, it had none in it
12 whatsoever. I think what we have to do here is remember
13 that we're doing an inspection of the licensee in the area
14 of compliance with 50.49 environmental qualification. There
15 very well may have been a maintenance issue. We chose not
16 to inspect that. We looked at a piece of equipment on a
17 master equipment list required to be qualified, and in fact
18 it was not because the conditions in the field didn't match
19 those specified in the file.

20 Q Because of the low levels of oil?

21 A [Witness Levis] In one case no oil, in other
22 cases low level.

23 MR. HANCOCK: No further questions.

24 JUDGE BOLLWERK: Any redirect?

25 MR. HOLLER: No redirect, sir.

EXAMINATION BY THE BOARD

1
2 JUDGE CARPENTER: I guess I will direct my
3 questions to Mr. Luehman, but other members of the panel can
4 feel free to contribute.

5 I would like to, once again, venture out on the
6 thin ice that Judge Morris took us on. Going back to the
7 inspection of the EQ files. Does 50.49 specify precisely
8 what should be in those files?

9 WITNESS LUEHMAN: It specifies that you have to
10 have adequate documentation to support qualification. It
11 does not specifically list what pieces of paper or what
12 documents have to be in the file.

13 JUDGE CARPENTER: So, it is only a broad
14 specification?

15 WITNESS LUEHMAN: Broad to the extent that it does
16 say that you have to have the paper for qualification. And
17 where the component is not exactly like the one in the
18 plant, then you have to -- it does go to the specificity of
19 specifying do you have to have similarity analysis -- you
20 have to have a similarity analysis in the file.

21 JUDGE CARPENTER: I guess what we are trying to
22 get a feel for, going back to the issue of engineering
23 judgment, whether that engineering judgment can be presented
24 to an inspector verbally, or whether he would expect to find
25 an engineering judgment on a piece of paper in the file?

1 WITNESS LUEHMAN: I think as I stated in the last
2 panel, to a certain extent on very obvious things, you have
3 very obvious conclusions that would be reached by anyone,
4 those things don't necessarily have to be in the file.
5 However, those things that would be in one individual's, you
6 know, a particular individual's head and would not
7 necessarily be known to all individuals, those things would
8 clearly have to be documented or they risk being voided by
9 another individual that might not reach those conclusions.

10 JUDGE CARPENTER: To put it another way, could an
11 inspector audit the files in the absence of any licensee
12 representative? And understand the quality of the file?

13 WITNESS LUEHMAN: Absolutely, and in many cases
14 during this inspection we did just that.

15 WITNESS PAULK: In this instance, the engineering
16 judgment is a little broader, I think, than what you may
17 understand. The purpose of the silicone oil, nonconductive
18 fluid, it filled the entire cavity where the detectors were
19 and it filled the junction box housing where either a
20 terminal block or a splice was located. And the oil being
21 heavier than water would prevent any moisture intrusion
22 during a design basis accident.

23 JUDGE CARPENTER: Let me qualify my question. It
24 wasn't necessarily directed to the transmitter issue.

25 If I understand your answer, the nominal standard

1 is what is necessary to understand whether or not the piece
2 of equipment is qualified, and should appear in the file in
3 writing?

4 WITNESS PAULK: Yes, sir.

5 JUDGE CARPENTER: And it's only a matter of
6 perhaps interpretation of what is written there?

7 WITNESS LUEHMAN: I think that assumes, sir, that
8 -- I think the one assumption that we would put in there is
9 that the file reviewer obviously has to have a certain level
10 of expertise in the area.

11 JUDGE CARPENTER: I don't think I could do it.

12 WITNESS LEVIS: During our file review process,
13 there were instances where we looked at the file and had no
14 questions. There were other cases where we looked at the
15 file, had some questions that were answered to us by the
16 licensee that weren't included in the file, and we went on
17 from there, and didn't consider it a documentation
18 deficiency, per se. And then there are others -- we are
19 talking about here -- where we thought it was significant
20 enough to get a required documentation.

21 JUDGE CARPENTER: Thank you.

22 JUDGE BOLLWERK: Judge Morris?

23 JUDGE MORRIS: I have no questions.

24 JUDGE BOLLWERK: Again, in terms of clearly knew
25 or should have known here, I take it that that is fairly

1 straightforward -- that there was simply no documentation in
2 the file to show that these transmitters, without an
3 adequate level of silicon -- am I pronouncing that
4 correctly?

5 WITNESS LEVIS: Sil-i-cone.

6 JUDGE BOLLWERK: Sil-i-cone, okay -- were
7 qualified?

8 WITNESS LUEHMAN: That's correct.

9 JUDGE BOLLWERK: Just one question on the matter
10 that Judge Carpenter raised. How do you derive -- does this
11 put the licensee at risk to some degree? I mean, you are
12 sitting there looking at the file. And if it's not there,
13 you want to -- at what point. I'm struggling with this
14 question.

15 You are making a judgment about what additional
16 information you are going to accept. You are going to look
17 at the file and say we need to ask more questions or we
18 don't need to ask more questions. I mean, how is the
19 licensee is supposed to know where you are going to draw the
20 line, in terms of how much additional information you are
21 going to want?

22 WITNESS LUEHMAN: Well, one thing I think that has
23 to be pointed out is, I don't think -- and I think Mr. Levis
24 and Mr. Merriweather can both corroborate this -- that when
25 an inspector has a question and the question, and this is

1 just in the general case, and he raises the question and the
2 licensee can't provide the answer because there is a gap or
3 whatever in the file -- as Mr. Levis says, frequently, as
4 happened in this inspection, the files were questioned. The
5 licensee either provided an additional document or made a
6 reference, you know verbally conveyed something to the
7 inspector, and the inspector accepted that.

8 Then you have the second case where the licensee
9 couldn't do that. In the individual inspector's own mind,
10 that may have been of significance to him. However, before
11 that is taken to the level of, you know, proposing it as an
12 escalated enforcement action, the first thing that is going
13 to happen is during the inspection he is going to consult
14 with, at a minimum with the team leader or other inspectors,
15 to get their opinion of what -- you know, is he
16 overreacting, you know, is this piece of paper, in fact, as
17 significant as I think it is.

18 And then subsequent, there is going to be a whole
19 series of levels of review of the deficiency found to ensure
20 that an individual inspector is not out there simply saying:
21 Well, because I'm ignorant in this area, and you can't
22 provide this piece of paper, there's an automatic violation.

23 I mean, I just think that we try to, that we as an
24 agency try to be very careful of that. And so there are
25 multitudes of levels of review, of which ones we considered

1 significant and which ones we don't.

2 WITNESS LEVIS: If I could add one other thing,
3 too. There was other information provided in the industry
4 that talked about the level of documentation that should be
5 supplied. IE notices 323-74, for example, I note specific
6 references to the level of documentation.

7 And as a result of some of the first inspections
8 that NRC did where documentation was an issue, they captured
9 many of those in Information Notice 85-39, and talked about
10 documentation issues specifically and what sort of things
11 that NRC inspectors were looking for.

12 JUDGE MORRIS: What was the date of that?

13 WITNESS LEVIS: The Information Notice? It's 85-
14 39.

15 JUDGE MORRIS: No, the date.

16 WITNESS LUEHMAN: The date. I'm only guessing,
17 but I think it was in the March 1985 time-frame. I guess we
18 could confirm that, but I think that that was about right.

19 JUDGE BOLLWERK: Do you have anything else?

20 JUDGE MORRIS: No.

21 JUDGE BOLLWERK: All right. I have no further
22 questions. I don't think there are any documents to be
23 moved into evidence at this point, are there?

24 MR. HOLLER: That's correct with regard to this
25 testimony. However, we do now have the copies of Staff,

1 what has been marked for identification as Staff Exhibit 58,
2 if you want to take care of that now.

3 JUDGE BOLLWERK: All right. I also notice that
4 Staff 57 has been marked for identification, and has not
5 been moved into evidence. Is that something that you want
6 to take care of now, or do you prefer to wait? I think that
7 that is a document that the Board had requested to be
8 provided.

9 MR. HOLLER: Yes, sir. That has been marked for
10 identification, but not moved in. We can -- I'll have to
11 see if we have enough copies of this yet. I don't believe
12 we --

13 JUDGE BOLLWERK: Let me check for just one second,
14 here.

15 I think we have enough copies.

16 MR. HOLLER: Yes, sir.

17 JUDGE BOLLWERK: Is that something that the
18 licensee needs to look at a second, if we are going to try
19 to move it into evidence?

20 MR. HOLLER: Let me show him what it is first.

21 MR. REPKA: We have no problem with that.

22 JUDGE BOLLWERK: All right. Why don't you go
23 ahead and make the motion, then.

24 MR. HOLLER: At this we move to put into evidence
25 what previously has been identified as Staff Exhibit 57,

1 Evaluation Of Licensee's Program For Qualification Of
2 Electrical Equipment Located In Harsh Environments, with a
3 date of 4-16-85 -- 4-16 1985, and annotated at the top are
4 comments for -- strike that. The document has been dated
5 April 4, 1985, annotated at the top: Comments 4-16-85.

6 We also move that, what has been previously marked
7 as Staff Exhibit 58, letter from Holler to the Board, dated
8 January 16, 1991, including charts and diagrams.

9 That documents numbered Staff Exhibits 57 and 58
10 be moved into evidence.

11 JUDGE BOLLWERK: Any objection?

12 MR. REPKA: No. objection.

13 JUDGE BOLLWERK: Then Staff Exhibits 57 and 58 are
14 received into evidence.

15 [Staff Exhibits 57 and
16 58 were received into
17 evidence.]

18 JUDGE BOLLWERK: At this point we can excuse this
19 panel, I take it?

20 Do we have something else?

21 MR. REPKA: One last thing. Judge Morris asked a
22 question about 85-39, and that's the date. For the sake of
23 the record, we just note that the date of that was May 22,
24 1985.

25 JUDGE BOLLWERK: Is that an exhibit that someone

1 has marked?

2 MR. REPKA: That has not been marked at this
3 point, or introduced.

4 JUDGE BOLLWERK: Thank you very much for that
5 information. We appreciate it.

6 MR. REPKA: Nothing further from us.

7 MR. HOLLER: The NRC staff just has some
8 administrative matters with regard to starting time on
9 Tuesday. We can do that off the record.

10 JUDGE BOLLWERK: Okay. I'll excuse this panel. I
11 thank Mr. Paulk and Mr. Levis. You are finished. We
12 appreciate your service to the Board. And you are all
13 excused, subject to be recalled as might be necessary.

14 Thank you very much.

15 We now stand adjourned until 9:00 a.m. on Tuesday.

16 [Whereupon, at 11:20 a.m., the hearing was
17 recessed, to reconvene at 9:00 a.m., Tuesday, February 18,
18 1992.]

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REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

in the matter of:

NAME OF PROCEEDING: Alabama Power

DOCKET NUMBER: O-348-CivP

PLACE OF PROCEEDING: Bethesda, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Marilyn Estep

Official Reporter
Ann Riley & Associates, Ltd.