

ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED  
ELECTRICAL EQUIPMENT  
IEB 79-01B

TECHNICAL EVALUATION REPORT

DOCKET NO. 50-348

PLANT: Joseph M. Farley Nuclear Plant, Unit 1

DATED: December 10, 1980

REVISION 1

Licensee: Alabama Power Company

Type Reactor: Pressurized Water Reactor

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Reactor Construction and Engineering  
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8106050003

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Attachment 2	List of Standard Systems
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## 1. INTRODUCTION

### 1.1 General

The NRC Office of Inspection and Enforcement (I/E) issued Bulletin 79-01B, "Environmental Qualification of Class 1E Equipment" in January 1980. This bulletin required the licensee to perform a detailed evaluation of the environmental qualification on Class 1E electrical equipment required to function under postulated accident conditions and to submit a report on this action.

This document is a report on the evaluation of the licensee's response to this bulletin.

## 2. BACKGROUND AND DISCUSSION

### 2.1 General

The evaluation of the licensee's response was accomplished by examining the licensee's report for completeness and technical accuracy. The licensee's report used in this evaluation is dated November 12, 1980, and includes the responses to the Bulletin Supplements with the exception of I/E Supplement No. 3 issued on October 24, 1980.

## 2.2 On-Site Inspections

The on-site inspection, made on selected IE equipment, verified proper installation of equipment, overall interface integrity, location with respect to flood level for equipment inside the containment, and manufacturers nameplate data. The manufacturer and model number from the nameplate data was compared to information given in the Component Evaluation Work Sheets (CES) to the licensee's report.

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Components that were examined during the field inspection are identified by an asterisk (\*) in Attachment 1. If any discrepancies were noted between the installed equipment and the correspondent equipment addressed in the licensee's report, they are discussed in Section 4 of this report. The site inspection is documented by IE report number 50-348/80-38.

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## 2.3 Evaluation of Licensee's Report

Each component as addressed on the Component Evaluation Work Sheets (CES) of the licensee's report was examined for completeness and accuracy to the criteria given in the bulletin. This examination assumed qualification documents (analysis, test reports, etc.) referenced by the licensee in their submittal are acceptable.

The results of this examination are documented in Attachment 1. The CES page numbers in column 1 of Attachment 1 is the same CES page found in the licensee's report.

### 3. GENERAL INFORMATION

#### 3.1 Identification Of Class 1E Electrical Equipment

The licensee's list of systems was compared to the systems listed on Attachment 2. This list is considered to be a standard list for pressurized water reactors.

It is recognized that there are differences in nomenclature of systems because of plant vintage and engineering design, therefore, many of these systems may not exist for Farley Unit 1 plant or the function of these systems for the Farley Unit 1 plant may be performed by comparable systems with different names. In any case, all the systems of Attachment 2 were not addressed or listed in the licensee's report. To insure completeness and uniformity of reports of similar design, it is considered that the licensee should address the following systems:

- (1) Steam Dump
- (2) Containment Sump.

Each of the above systems should be analyzed and a brief discussion should explain how the system was addressed or why it was excluded from the report. For example: "Reactor Protection System - This is a

valid system designation at Farley Unit 1 plant; however, the input signals to this system are obtained from various components in other systems that are included in this report."

### 3.2 Service Conditions

The service condition accident environment, HELB/LOCA inside containment and HELB outside containment are indicated or discussed in the licensee's report.

### 3.3 Qualification Documentation

Attachment 3 is a list of documents (test reports, analysis, letters, etc.) used by the licensee in determining the environmental qualification of plant equipment for Farley Unit 1. These references have been tabulated by the licensee and are indicated on the applicable CES of their report.

## 4. EQUIPMENT DATA REVIEW

4.1 Equipment that is considered to meet IEB 79-01B requirements are categorized as 1 in the last column of Attachment 1.

4.2 Equipment whose qualified life (Aging) is less than the life of the plant is categorized as 2 in the last column of Attachment 1.

- 4.3 The licensee has identified specific equipment which has been or is being replaced, modified or relocated as a result of their IEB 79-01B efforts. This equipment is categorized as 3 in the last column of Attachment 1.
- 4.4. Equipment whose qualification is unresolved (such as, a qualification record search is still in process, tests are scheduled to determine qualification, additional information is needed by the NRC reviewer to satisfy him that equipment is qualified, etc.) is categorized as 4 in the last column of Attachment 1.
- 4.5 Equipment that the licensee has identified as not being qualified required an LER with justification for continued plant operation.

No LER's were received in Region II for Farley 1.

- 4.6 Equipment whose qualification (Aging exempted to a certain degree - see DOR guideline Section 4) is unresolved, as identified by the licensee is listed in Attachment 4 as Outstanding Items.

The licensee has provided justification for continued plant operation for many, if not all, of these outstanding items in their report. In many cases, this is provided on their CES or in a special section of the report. In some cases the licensee states that this justification is by Engineering Analysis that are available at their office.

4.7 The components reviewed during the on-site inspection were examined for proper installation, interface integrity, location and manufacturers nameplate data. The manufacturers nameplate data was compared to the information shown in the component evaluation sheets of the licensee's report. The components that contained discrepancies between the actual nameplate data and the licensee's submittal to IEB 79-01B are identified by double asterisks (\*\*) in Attachment 1. However, these have been identified by the licensee as a result of a walkdown program initiated prior to the on-site inspection as indicated in their report, Section C.1.4.

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## 5. CONCLUSIONS

Due to the time constraints imposed by the Commission Memo and Order of 5/23/80 this evaluation is based on the licensee submittal dated November 12, 1980. This licensee's report does not address all items that may be pertinent to Farley Unit 1 plant as a result of IEB 79-01B Bulletin Supplements 2 and 3 issued on 9/30/80 and 10/24/80, respectively. Specifically, information on cold shutdown and TMI Lessons Learned related equipment which is received subsequent to 11/1/80 will be evaluated by EQB of NRR.

The licensee's actions meet the requirements of the Commission Memo and Order of 5/23/80 and justification for continued plant operation with many of the components that have unresolved qualification items is indicated in Section 4.6. Based on the information available, the Region II reviewer



considers that the justification is commensurate for the areas identified, that the proposed corrective action meets requirements of the Commission Memo and Order of 5/23/80, and therefore, plant operation can continue until these items are resolved as committed to by the licensee.

This evaluation is based on the information supplied by the licensee in their submittal, their FSAR, and the assumption that the Qualification Documents (Test Reports, Analysis, Letter, etc.) are acceptable.

The results of this evaluation does not necessarily imply that the equipment is unreliable, unsafe or represents a significant safety issue; it does imply that additional information is required. This is indicated by the applicable categorization indicated in the last column of Attachment 1.

PAU-113 Taylor  
 SYSTEM AUK-57-120

ATTACHMENT I  
 FOR IEB 79-01B  
 TER

Equip. I. D. #	Generic Name	Accid. Profile	Qual. Profile	Radiation Qual. Containment		Qual. Method	Chem. Spray	Accur.	Subm.	Licensee Action		Outstanding Items Identified by	Category of Items
				Inside	Outside					Relocate	Relocate		
2	Q1N125V 3234A SV									yes		L	3*
3	Q1N122S 3234A LS									yes		L	3,**
4	Q1N125V 3234B SV									yes		L	3
5	Q1N122S 3234C LS									yes		L	3
6	Q1N125V 3235A SV									yes		L	3*
7	Q1N122S 3235A LS									yes		L	3*
8	Q1N125V 3235B SV									yes		L	3,*7
9	Q1N122S 3235B LS									yes		L	3
10	Q1N125V 3234A TB/33									yes		L	3
11	Q1N125V 3234B TB/30											-	1
12	Q1N125V 3234A TB/30											-	1
13	Q1N125V 3235B TB/30											-	1

Code:  
 B - Indicates the item is below the flood level  
 ✓ or 5 - Indicates the item is Satisfactory  
 - or N - Indicates the item is Not Applicable  
 . - Indicates the item is Unresolved, Licensee Identified  
 P - Proprietary  
 L - Licensee Identified  
 K - Reviewer Identified  
 1 - Equipment is qualified  
 2 - Aging in less than life of plant with licensee indicating periodic replacement  
 3 - Equipment requires modification (resolution, shielding, etc.)  
 4 - Qualification of equipment unresolved  
 a) Testing schedule but not complete  
 b) Reviewer needs additional information  
 c) Qual. Record search still in process  
 5 - Equipment not qualified  
 6 - Item identified to EQB for resolution  
 7 - Aging plate not accessible

REVIEWER: W. Brownlee  
 DATE: 11/1/80

PACILE: Forley #1  
 SYSTEM: Feedwater Control

ATTACHMENT 1  
 FOR IEB 79-01B  
 TER

C&S Page No.	Equip. I. D. #	Generic Name	Accid. Profile	Qual. Profile	Radiation Oupl. Containment		Qual. Method	Chem. Spray	Accur.	Subm.	Licensee Action		Outstanding Items Identified by	Category of Items
					Inside	Outside					Replace	Relocate		
C.2.4 4	50472	LT SW	✓			-				-	YES	-	L	3
C.2.4 5	V0478A	SV	✓			-				-	YES	-	L	3
C.2.4 6	V0478B	SV	✓			-				-	YES	-	L	3
C.2.4 7	50488	LT SW	✓			-				-	YES	-	L	3
C.2.4 8	V0488A	SV	✓			-				-	YES	-	L	3
C.2.4 9	V0488B	SV	✓			-				-	YES	-	L	3
C.2.4 10	50498	LT SW	✓			-				-	YES	-	L	3
C.2.4 11	V0498A	SV	✓			-				-	YES	-	L	3
C.2.4 12	V0498B	SV	✓			-				-	YES	-	L	3
C.2.4 13	50479	LT SW	✓			-				-	YES	-	L	3, ** R1
C.2.4 14	V0479A	SV	✓			-				-	YES	-	L	3, ** R1
C.2.4 15	V0479B	SV	✓			-				-	YES	-	L	3, ** R1

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

REVIEWER: [Signature] DATE: 11/7/80

FACILITY: Forsyth #1  
 SYSTEM: Water Control

ATTACHMENT I  
 FOR IEB 79-01B  
 TER

CES. Page No.	Equip. I. D. #	Generic Name	Accid. Profile	Qual. Profile	Radiation Qual. Containment		Qual. Method	Chem. Spray	Accur.	Subm.	Licensee Action		Outstanding Items Identified by	Category of Items
					Inside	Outside					Replace	Relocate		
C.2.4 16	10489	TSW	✓	✓	-	-	-	-	-	-	Yes	-	L	3, **
C.2.4 17	10489A	SV	✓	✓	-	-	-	-	-	-	Yes	-	L	3, **
C.2.4 18	10489B	SV	✓	✓	-	-	-	-	-	-	Yes	-	L	3, **
C.2.4 19	50499	TSW	✓	✓	-	-	-	-	-	-	Yes	-	L	3
C.2.4 20	10497A	SV	✓	✓	-	-	-	-	-	-	Yes	-	L	3, **
C.2.4 21	10497B	SV	✓	✓	-	-	-	-	-	-	Yes	-	L	3, **
C.2.4 22	10478	A/IB	✓	✓	-	✓	✓	✓	-	-	-	-	-	1
C.2.4 23	10478A	A/IB	✓	✓	-	✓	✓	✓	-	-	-	-	-	1
C.2.4 24	10478B	A/IB	✓	✓	-	✓	✓	✓	-	-	-	-	-	1
C.2.4 25	17474	T	✓	✓	P	-	P	✓	P	✓	-	-	-	2
C.2.4 26	17475	T	✓	✓	P	-	P	✓	P	✓	-	-	-	2
C.2.4 27	17476	T	✓	✓	P	-	P	✓	P	✓	-	-	-	2

B - Indicates the item is below the flood level  
 ✓ or S - Indicates the item is Satisfactory  
 - or N - Indicates the item is Not Applicable  
 UL - Indicates the item is Unremoved, Licensee Identified  
 P - Proprietary  
 L - Licensee Identified  
 R - Reviewer Identified  
 I - Equipment is qualified  
 2 - Aging is less than life of plant with licensee  
 3 - Equipment requires modification (resolution, shielding, etc.)  
 4 - Qualification of equipment unresolved  
 a) Testing schedule but not complete  
 b) Reviewer needs additional information  
 c) Qual. Record search still in process  
 5 - Equipment not qualified  
 6 - Item identified to IEB for resolution

REVIEWER: [Signature] DATE: 11-7-80

PAGE 1

SYSTEM MAIN STEAM

ATTACHMENT 1  
FOR ILS 79-018  
TSM

CES. Page No.	Equip. I. D. #	Generic Name	Accid. Profile	Qual. Profile	Proficiency (Qual. Method)		Qual. Method	Chem. Spray	Accur.	Subm.	Licensee Action		Outstanding Items Identified by	Category of Items
					Include	Exclude					Replace	Relocate		
5	PIN1125 3369A	LS	✓								Yes	-	L	3,*,* R1
6	PIN115V 3369AA	SV	✓								Yes	-	L	3,*,* R1
7	PIN115V 3369AC	SV	✓								Yes	-	L	3,*,* R1
8	PIN1125 3369A	LS	✓								Yes	-	L	3,*,* R1
9	PIN115V 3369BA	SV	✓								Yes	-	L	3
10	PIN115V 3370BC	SV	✓								Yes	-	L	3
11	PIN1125 3369C	LS	✓								Yes	-	L	3
12	PIN115V 3369CA	SV	✓								Yes	-	L	3
13	PIN115V 3369CC	SV	✓								Yes	-	L	3
14	PIN1125 3370A	LS	✓								Yes	-	L	3
15	PIN115V 3370AA	SV	✓								Yes	-	L	3,*,* R1
16	PIN115V 3370AC	SV	✓								Yes	-	L	3,*,* R1

B = Indicates the Item is below the Flood Level  
 ✓ or S = Indicates the Item is Satisfactory  
 - or N = Indicates the Item is Not Applicable  
 UL = Indicates the Item is Unlicensed, Licensee Identified  
 P = Proprietary  
 L = Licensee Identified  
 R = Reviewer Identified  
 I = Equipment Is Qualified  
 ? = Rating is less than the rating of plant with license  
 3 = Equipment requires modification (revolution, shieldin., etc.)  
 4 = Qualification of equipment unresolved  
 a) Testing schedule but not complete  
 b) Reviewer needs additional information  
 c) Qual. Record search still in process  
 5 = Equipment not qualified  
 6 = Item identified to IEP for resolution

FACILITY Fordley  
 SYSTEM Maria F. 2/2/80

ATTACHMENT I  
 FOR IEB 79-018  
 TER

CES. Page No.	Equip. I. D. #	Generic Name	Accu. Profile	Qual. Profile	Radiation Oupl. Containment		Qual. Method	Chem. Spray	Accur.	Subm.	Licensee Action		Outstanding Items Identified by	Category of Items
					Inside	Outside					Replace	Relocate		
2	R1N21V 01A-0	M10V	✓	✓	-	✓	✓	-	-	-	-	-	-	1, *
3	R1N21V 001B-0	M10V	✓	✓	-	✓	✓	-	-	-	-	-	-	1, *
4	R1N21V 001C-0	M10V	✓	✓	-	✓	✓	-	-	-	-	-	-	1, *
5	R1N21L M10V	LS	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *
6	R1N21L M10V	LS	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *
7	R1N21L M10V	LS	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *
8	R1N21L M10V	LS	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *
9	R1N21L M10V	LS	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *
10	R1N21L M10V	LS	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *
11	R1N21L M10V	LS	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *
12	R22	CCU	✓	✓	-	✓	✓	✓	-	-	-	-	-	1, *

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 ✓ or S - Indicates the item is satisfactory  
 - or N - Indicates the item is Not Applicable  
 UL - Indicates the item is Unresolved, Licensee identified  
 P - Proprietary  
 L - Licensee identified  
 R - Reviewer identified  
 1 - Equipment is qualified  
 2 - Aging is less than life of plant with licensee indicating periodic replacement  
 3 - Equipment requires modification (resolution, shielding, etc.)  
 4 - Qualification of equipment unresolved  
 a) Testing schedule but not complete  
 b) Reviewer needs additional information  
 c) Qual. Record search still in process  
 5 - Equipment not qualified  
 6 - Item identified to EQB for resolution

REVIEWER W. Branku DATE 11/2/80

Farkley 3  
Aux Feedwater (Aux Fw)

CES. Page No.	Equip. I. D. #	Generic Name	Accid. Profile	Qual. Profile	Radiation Qual. Confinement		Qual. Method	Chem. Spray	A-cur.	Subm.	Licensee Action		Outstanding Items Identified by	Category of Items
					Inside	Outside					Replace	Relocate		
4	QIN23 V011A	MOV	L	L	-	L	L	-	-	-	-	-	-	1,*
5	QIN23 V011B	MOV	L	L	-	L	L	-	-	-	-	-	-	1,* RI
6	QIN23 V011C	MPV	L	L	-	L	L	-	-	-	-	-	-	1,* RI
7	QIN23 Z5 3238A	Limit SW	L	3	-	3	3	-	-	-	-	L	L	3,** RI
8	QIN23 SV 3238AA	SV	L	3	-	3	3	-	-	-	-	L	L	3,* RI
9	QIN23 3238B	Limit SW	L	3	-	3	3	-	-	-	-	L	L	3
10	QIN23 SV 3238BA	SV	L	3	-	3	3	-	-	-	-	L	L	3,* RI
11	QIN23 SV 3238CA	Limit SW	L	3	-	3	3	-	-	-	-	L	L	3,** RI
12	QIN23 SV 3238A	SV	L	3	-	3	3	-	-	-	-	L	L	3,* RI
13	QIN23 Z5 3237A	Limit SW	L	3	-	3	3	-	-	-	-	L	L	3,** RI
14	QIN23 SV 3237AA	SV	L	3	-	3	3	-	-	-	-	L	L	3,* RI
15	QIN23 Z5 3237B	Limit SW	L	3	-	3	3	-	-	-	-	L	L	3,* RI

Code:

- M - Indicates the item is below the flood level
- ✓ or S - Indicates the item is Satisfactory
- or N - Indicates the item is Not Applicable
- UL - Indicates the item is Unresolved, Licensee Identified
- P - Proprietary
- L - Licensee Identified
- R - Reviewer Identified
- I - Equipment is qualified
- 2 - Aging is less than life of plant with licensee indicating periodic replacement

3 - Equipment requires modification (resolution, shielding, etc.)  
 4 - Qualification of equipment unresolved  
 a) Testing schedule but not complete  
 b) Reviewer needs additional information  
 c) Qual. Record search still in process  
 5 - Equipment not qualified  
 6 - Item identified to EQB for resolution