Docket Nos. 50-348	DISTRIBUTION	
and 50-364	Docket File	NRC PDR
	L PDR	ORB#1 Rdg
	HThompson	EReeves(2)
	OELD	CParrish
Mr. R. P. McDonald	SECY	LHarmon
Senior Vice President	EJordan	BGrimes
Alabama Power Company	JPartlow	TBarnhart 8
Post Office Box 2641	WJones	EButcehr
Birmingham, Alabama 35291	ACRS 10	CMiles
5	RDiggs	RBallard
Dear Mr. McDonald:	Gray File	SRhow

The Commission has issued the enclosed Amendment No. 59 to Facility Operating License No. NPF-2 and Amendment No. 50 to NPF-8 for the Joseph M. Farley Nuclear Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated May 3, 1983, supplemented July 29 and September 23, 1983, and January 27 and September 6, 1984.

The amendments modify the Technical Specification surveillance requirements for the auxiliary building and service water building d.c. batteries including load tests and checks of such things as battery voltage, electrolyte load, specific gravity, and general battery conditions at specified intervals to assure continued operability. The changes update the surveillance requirements to conform to the newer Commission format based on the more recent IEEE Standard 450-1980.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular monthly Federal Register notice.

Sincerely,

/s/JNorris

Edward A. Reeves, Project Manager Operating Reactors Branch #1 Division of Licensing



Mr. R. P. McDonald Alabama Power Company

cc: Mr. W. O. Whitt Executive Vice President Alabama Power Company Post Office Box 2641 Birmingham, Alabama 35291

> Mr. Louis B. Long, General Manager Southern Company Services, Inc. Post Office Box 2625 Birmingham, Alabama 35202

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UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 59 License No. NPF-2

- 1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Alabama Power Company (the licensee) dated May 3, 1983, supplemented July 29 and September 23, 1983, and January 27 and September 6, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
- Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-2 is hereby amended to read as follows:

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PDR

(2) Technical Specifications

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The Technical Specifications contained in Appendices A and B, as revised through Amendment No.59 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

arga, Chief even A.

Operating Reactors Branch #1 Division of Licensing

Attachment: Changes to the Technical Specifications

Date of Issuance: May 24, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 59 AMENDMENT NO. 59 FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

Revised Appendix A as follows:

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Remove Pages	Insert Pages
3/4 8-8	3/4 8-8
3/4 8-9	3/4 8-9 and 3/4 8-9a
3/4 8-10	3/4 8-10
3/4 8-11	3/4 8-11
3/4 8-12	3/4 8-12
3/4 8-13	3/4 8-13
3/4 8-14	3/4 8-14
B 3/4 8-1	B 3/4 8-1

AUXILIARY BUILDING D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. distribution systems shall be OPERABLE and energized:

Train "A" consisting of 125-volt D.C. bus No. 1A, 125-volt battery bank No. 1A and a full capacity charger.

Train "B" consisting of 125-volt D.C. bus No. 1B, 125-volt battery bank No. 1B and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one of the 125-volt D.C. trains inoperable or not energized, restore the inoperable train to OPERABLE and energized status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

- 4.8.2.3.1 Each D.C. train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated voltage on the bus.
- 4.8.2.3.2 Each 125-volt D.C. battery bank and charger shall be demonstrated OPERABLE:
 - a. At least once per 7 days by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category A limits, and
 - 2. The total battery terminal voltage is greater than or equal to 127.8 volts on float charge.
 - b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category B limits,

FARLEY-UNIT 1

3/4 8-8

AUXILIARY BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

- 2. There is no excessive visible corrosion at either terminals or connectors, or the connection resistance of these items is less than or equal to 150 microhms from post to post*, and
- 3. The average electrolyte temperatures of ten of the connected cells deviate less than or equal to 5°F from each other**.
- c. At least once per 18 months by verifying that:
 - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material,
 - 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150 microhms from post to post*, and
 - 4. The battery charger will supply at least 536 amperes at greater than or equal to 125 volts for at least 4 hours.

FARLEY-UNIT 1

^{*}For any connection resistance determined to be greater than 150 microhms from post to post, the battery may be considered operable provided that within 24 hours the connection resistance is restored to less than or equal to 150 microhms from post to post.

^{**}If a deviation greater than 5°F is determined, the battery may be considered operable provided that within 24 hours the temperature deviation is corrected.

AUXILIARY BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

5. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for 2 hours when the battery is subjected to a battery service test or the individual cell voltage does not decrease below 1.75 volts when the battery is subjected to the following equivalent load profile.

Order In Which Loads Are Applied	Current (amps)	Duration (min.)
1	920	1
2	430	58
3	92 0	1
4	430	59
5	920	1

- d. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test per 4.8.2.3.2.c.5.
- e. At least once per 18 months, performance discharge test of battery capacity shall be given to any battery that shows signs of degradation or has reached 17 years or 85% of the service life expected for the application, whichever comes first. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

FARLEY-UNIT 1

D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

TABLE 4.8-2

BATTERY SURVEILLANCE REQUIREMENTS

	CATEGORY A (1)	CATEGORY B	
Parameter	Limits for each designated pilot cell	Limits for each connected cell (2)	Allowable (3) value for each connected cell
Electrolyte Level	>Minimum level indication mark, and < 1/4" above maximum level indication mark	>Minimum level indication mark, and < 1/4" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage (4)	<u>></u> 2.08 volts	<u>></u> 2.08 volts	> 2.02 volts
Specific Gravity (a)	<u>></u> 1.195 (b)	<u>></u> 1.190	If a cell is less than 1.190, then it shall not have de- creased more than .080 from the previous 92 day test.
		Average of all connected cells > 1.195	Average of all connected cells > 1.190

(a) Corrected for electrolyte temperature of 77°F.

- (b) Or battery charging current is less than 2 amps when on float charge.
- (1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all Category B measurements are taken and found to be within their allowable values, and provided all parameter(s) are restored to within Category B limits within the next 6 days.
- (2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that they are within their allowable values and provided they are restored to within limits within 7 days.
- (3) Any Category B parameter not within its allowable value indicates an inoperable battery.
- (4) The average cell float voltage shall be greater than 2.13 volts in order for the battery to be considered OPERABLE.

FARLEY - UNIT 1

AUXILIARY BUILDING D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.4 As a minimum, one 125-volt D.C. bus, battery bank and its associated full capacity charger shall be OPERABLE.

APPLICABILITY: MODES 5 and 6

ACTION:

With the required D.C. bus, battery bank and/or full capacity charger inoperable, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes or movement of irradiated fuel; initiate corrective action to restore the required battery bank, full capacity charger and bus to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

- 4.8.2.4.1 The above required 125-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated voltage on the bus.
- 4.8.2.4.2 The above required 125-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

SERVICE WATER BUILDING D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.5 The following D.C. distribution systems shall be OPERABLE and energized:

Train "A" consisting of 125-volt D.C. Distribution Cabinet 1M, 125-volt battery bank No. 1 and a full capacity charger.

Train "B" consisting of 125-volt D.C. Distribution Cabinet 1N, 125-volt battery bank No. 2 and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

<u>ACTION</u>: With one of the 125-volt distribution trains inoperable*, restore the inoperable distribution system to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.5.1 Each D.C. train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.5.2 Each 125-volt D.C. battery bank and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category A limits, and
 - 2. The total battery terminal voltage is greater than or equal to 127.8 volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category B limits,

FARLEY-UNIT 1

^{*}Except during performance of Surveillance Requirements 4.8.2.5.2.d, 4.8.2.5.2.e, and 4.8.2.5.2.c.5. During this test, one train may be inoperable until the battery is recharged following completion of the battery discharge test.

SERVICE WATER BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

- 2. There is no visible excessive corrosion at either terminals or connectors, or the connection resistance of these items is less than or equal to 1500 microhms from post to post*, and
- 3. The average electrolyte temperatures of ten of the connected cells deviate less than or equal to 5°F from each other**.
- c. At least once per 18 months by verifying that:
 - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material,
 - The resistance of each cell-to-cell and terminal connection is less than or equal to 1500 microhms from post to post*, and
 - The battery charger will supply at least 3 amperes at greater than or equal to 125 volts for at least 4 hours.
 - 5. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for 2 hours when the battery is subjected to a battery service test or the individual cell voltage does not decrease below 1.75 volts when the battery is subjected to the following equivalent load profile:

Order In Which Loads Are Applied	Current (amps)	Duration (min.)
1	25	0 - 1.0
2	1	1.0 - 120

- * For any connection resistance determined to be greater than 1500 microhms from post to post, the battery may be considered operable provided that within 24 hours the connection resistance is restored to less than or equal to 1500 microhms from post to post.
- **If a deviation greater than 5°F is determined, the battery may be considered operable provided that within 24 hours the temperature deviation is corrected.

FARLEY-UNIT 1

SERVICE WATER BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test per 4.8.2.5.2.c.5.
- e. At least once per 18 months, performance discharge test of battery capacity shall be given to any battery that shows signs of degradation or has reached 17 years or 85% of the service life expected for the application, whichever comes first. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

BASES

3/4.8.1 and 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10CFR50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources is consistent with the initial condition assumptions of the safety analyses and is based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971. The criteria of NUREG/CR-0660, "Enhancement of On-Site Diesel Generator Reliability," February 1979, the manufacturer's recommendations, and operating experience have been utilized to develop a diesel reliability program which provides an extremely high confidence in diesel operability. The surveillance test frequency is based on Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, with adjustments made to preclude over-testing which has been verified by the manufacturer to be detrimental to diesel generator reliability.

The Surveillance Requirements for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of IEEE Standard 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

FARLEY-UNIT 1

B 3/4 8-1



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.⁵⁰ License No. NPF-8

- 1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Alabama Power Company (the licensee) dated May 3, 1983, supplemented July 29 and September 23, 1983, and January 27 and September 6, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
- Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-8 is hereby amended to read as follows:

(2) <u>Technical Specifications</u>

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.50, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

even A. Varga,

Operating Reactors Branch #1 Division of Licensing

Attachment: Changes to the Technical Specifications

Date of Issuance: May 24, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 50 AMENDMENT NO. 50FACILITY OPERATING LICENSE NO. NPF-8 DOCKET NO. 50-364

Revised Appendix A as follows:

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Remove Pages	Insert Pages
3/4 8-11	3/4 8-11
3/4 8-12	3/4 8-12 and 3/4 8-12a
3/4 8-13	3/4 8-13
3/4 8-14	3/4 8-14
3/4 8-15	3/4 8-15
3/4 8-16	3/4 8-16
3/4 8-17	3/4 8-17
B 3/4 8-1	B 3/4 8-1

AUXILIARY BUILDING D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. distribution systems shall be OPERABLE and energized:

Train "A" consisting of 125-volt D.C. bus No. 2A, 125-volt battery bank No. 2A and a full capacity charger.

Train "B" consisting of 125-volt D.C. bus No. 2B, 125-volt battery bank No. 2B and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one of the 125-volt D.C. trains inoperable or not energized, restore the inoperable train to OPERABLE and energized status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

- 4.8.2.3.1 Each D.C. train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated voltage on the bus.
- 4.8.2.3.2 Each 125-volt D.C. battery bank and charger shall be demonstrated OPERABLE:
 - a. At least once per 7 days by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category A limits, and
 - 2. The total battery terminal voltage is greater than or equal to 127.8 volts on float charge.
 - b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category B limits,

FARLEY-UNIT 2

3/4 8-11

AUXILIARY BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

- There is no excessive visible corrosion at either terminals or connectors, or the connection resistance of these items is less than or equal to 150 microhms from post to post*, and
- 3. The average electrolyte temperatures of ten of the connected cells deviate less than or equal to 5°F from each other**.
- c. At least once per 18 months by verifying that:
 - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material,
 - 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150 microhms from post to post*, and
 - 4. The battery charger will supply at least 536 amperes at greater than or equal to 125 volts for at least 4 hours.

FARLEY-UNIT 2

^{*}For any connection resistance determined to be greater than 150 microhms from post to post, the battery may be considered operable provided that within 24 hours the connection resistance is restored to less than or equal to 150 microhms from post to post.

^{**}If a deviation greater than 5°F is determined, the battery may be considered operable provided that within 24 hours the temperature deviation is corrected.

AUXILIARY BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

5. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for 2 hours when the battery is subjected to a battery service test or the individual cell voltage does not decrease below 1.75 volts when the battery is subjected to the following equivalent load profile.

Order In Which Loads Are Applied	Current (amps)	Duration (min.)
1	920	1
2	430	58
3	920	1
4	430	59
5	92 0	1

- d. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test per 4.8.2.3.2.c.5.
- e. At least once per 18 months, performance discharge test of battery capacity shall be given to any battery that shows signs of degradation or has reached 17 years or 85% of the service life expected for the application, whichever comes first. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

FARLEY-UNIT 2

3/4 8-12(a)

D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

TABLE 4.8-2

BATTERY SURVEILLANCE REQUIREMENTS

	CATEGORY A (1)	CATEGORY B	
Parameter	Limits for each designated pilot cell	Limits for each connected cell (2)	Allowable (3) value for each connected cell
Electrolyte Level	>Minimum level indication mark, and < 1/4" above maximum level indication mark	>Minimum level indication mark, and < 1/4" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage (4)	\geq 2.08 volts	<u>></u> 2.08 volts	> 2.02 volts
Specific Gravity (a)	<u>></u> 1.195 (b)	<u>></u> 1.190	If a cell is less than 1.190, then it shall not have de- creased more than .080 from the previous 92 day test.
		Average of all connected cells > 1.195	Average of all connected cells > 1.190

(a) Corrected for electrolyte temperature of 77°F.

- (b) Or battery charging current is less than 2 amps when on float charge.
- (1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all Category B measurements are taken and found to be within their allowable values, and provided all parameter(s) are restored to within Category B limits within the next 6 days.
- (2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that they are within their allowable values and provided they are restored to within limits within 7 days.
- (3) Any Category B parameter not within its allowable value indicates an inoperable battery.
- (4) The average cell float voltage shall be greater than 2.13 volts in order for the battery to be considered OPERABLE.

FARLEY - UNIT 2

AUXILIARY BUILDING D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.4 As a minimum, one 125-volt D.C. bus, battery bank and its associated full capacity charger shall be OPERABLE.

APPLICABILITY: MODES 5 and 6

ACTION:

With the required D.C. bus, battery bank and/or full capacity charger inoperable, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes or movement of irradiated fuel; initiate corrective action to restore the required battery bank, full capacity charger and bus to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

- 4.8.2.4.1 The above required 125-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated voltage on the bus.
- 4.8.2.4.2 The above required 125-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

SERVICE WATER BUILDING D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.5 The following D.C. distribution systems shall be OPERABLE and energized:

Train "A" consisting of 125-volt D.C. Distribution Cabinet 2M, 125-volt battery bank No. 1 and a full capacity charger.

Train "B" consisting of 125-volt D.C. Distribution Cabinet 2N, 125-volt battery bank No. 2 and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

<u>ACTION</u>: With one of the 125-volt distribution trains inoperable*, restore the inoperable distribution system to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.5.1 Each D.C. train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.5.2 Each 125-volt D.C. battery bank and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category A limits, and
 - 2. The total battery terminal voltage is greater than or equal to 127.8 volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 - 1. The parameters in Table 4.8-2 meet the Category B limits,

FARLEY-UNIT 2

^{*}Except during performance of Surveillance Requirements 4.8.2.5.2.d, 4.8.2.5.2.e, and 4.8.2.5.2.c.5. During this test, one train may be inoperable until the battery is recharged following completion of the battery discharge test.

SERVICE WATER BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

- 2. There is no visible excessive corrosion at either terminals or connectors, or the connection resistance of these items is less than or equal to 1500 microhms from post to post*, and
- The average electrolyte temperatures of ten of the connected cells deviate less than or equal to 5°F from each other**.
- c. At least once per 18 months by verifying that:
 - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material,
 - 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 1500 microhms from post to post*, and
 - 4. The battery charger will supply at least 3 amperes at greater than or equal to 125 volts for at least 4 hours.
 - 5. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for 2 hours when the battery is subjected to a battery service test or the individual cell voltage does not decrease below 1.75 volts when the battery is subjected to the following equivalent load profile:

Order In Which Loads Are Applied	Current (amps)	Duration (min.)
1	25	0 - 1.0
2	1	1.0 - 120

^{*} For any connection resistance determined to be greater than 1500 microhms from post to post, the battery may be considered operable provided that within 24 hours the connection resistance is restored to less than or equal to 1500 microhms from post to post.

FARLEY-UNIT 2

^{**}If a deviation greater than 5°F is determined, the battery may be considered operable provided that within 24 hours the temperature deviation is corrected.

SERVICE WATER BUILDING D.C. DISTRIBUTION - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test per 4.8.2.5.2.c.5.
- e. At least once per 18 months, performance discharge test of battery capacity shall be given to any battery that shows signs of degradation or has reached 17 years or 85% of the service life expected for the application, whichever comes first. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

BASES

3/4.8.1 and 3/4.8.2 A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10CFR50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources is consistent with the initial condition assumptions of the safety analyses and is based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971 and 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977.

The Surveillance Requirements for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of IEEE Standard 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of overcurrent protection circuit breakers during periodic surveillance.

FARLEY-UNIT 2



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 59 TO FACILITY OPERATING LICENSE NO. NPF-2

AND AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NO. NPF-8

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-348 AND 50-364

Introduction

Alabama Power Company (the licensee) proposed Technical Specification (TS) changes for Joseph M. Farley Nuclear Plant, Units 1 and 2, by letter dated May 3, 1983, supplemented July 29 and September 23, 1983, and January 27 and September 6, 1984. The proposed changes involve TS's 3/4 8.2.3, 3/4 8.2.4 and 3/4 8.2.5 which provide specific Limiting Condition for Operation (LCO) and Surveillance Requirements for the Auxiliary and Service Water Building D.C. distribution systems. The licensee states that the proposed changes update the existing TS's to conform to the most recent Westinghouse standard specifications (NUREG-0452, Revision 4), current industry practice, and specific design parameters at Farley site. Our evaluation follows.

Discussion and Evaluation

Existing TS's at Farley are based on Regulatory Guide 1.129 and IEEE Standard 450-1975. The most recent guidance for TS's considers the later version of IEEE Standard 450-1980. We evaluated the licensee's proposed changes and specific differences which the licensee proposed. Our evaluation outline uses the corresponding item numbers noted in the licensee's bases paragraph of Attachment 1 to letter dated May 3, 1983. The remaining supplementary licensee letters provided additional technical justifications needed by our staff. These supplements have not materially changed the originally proposed changes to upgrade the existing TS's.

1. Standard Technical Specifications (STS) are based on the battery manufacturer's recommended full charge specific gravity of 1.215. With such a full charge specific gravity, the STS resultant test criteria are 1.200 for Category A testing (once per week) and 1.195 for Category B testing (once per 92 days). The Farley batteries have a manufacturer's recommended specific gravity of 1.210 for the service water building batteries and 1.215 for the auxiliary building batteries. As a result, an acceptable specific gravity criterion was established at 1.190

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minimum specific gravity for both batteries. The licensee's proposed change in the specific gravity limits is based on the currently acceptable specific gravity criterion and conforms with the STS format. Thus, we accept the battery surveillance criteria for specific gravity of 1.195 for Category A testing and 1.190 for Category B testing as shown in Table 4.8-2.

The proposed Table 4.8-2 should contain a Category B allowable limit of 0.020 below the average of all connected cells if a cell is less than 1.190 in specific gravity. The licensee's existing TS value allows a cell specific gravity to be 0.080 below the value observed in the previous 92 day test. The licensee does not propose to change the value of 0.080 which was previously approved by the NRC staff during the licensing review of the facility. Therefore, the 0.080 value remains an acceptable value based on our previous evaluation and acceptance.

2. The STS float voltage criterion is 2.13 volts for the Category A and B limits and 2.07 volts for the Category B allowable. The current Farley Plant TS's require that the pilot cell voltage and the voltage of each connected cell be greater than or equal to 2.02 volts while under a float charge.

However, the licensee proposed Category A and B limits of 2.08 volts (in Table 4.8-2) which are less than the 2.13 volts shown in the STS. The licensee justifies that (1) the cell float charging voltage is not, by itself, a comprehensive indication of the state of charge of the battery, (2) a single cell (pilot cell) can have a degraded voltage (less than 2.08 volts) and the batteries as a whole can still perform the design function as discussed in the STS Bases, and (3) IEEE Standard 450-1980 does not consider a battery to be potentially degraded unless its voltage drops below 2.07 volts. Also, Farley plant has experience indicating that a cell voltage of less than 2.13 volts under float charge had not indicated inoperability of the entire battery. In twenty cases where at least one cell was below 2.13 volts, the minimum average specific gravity of 1.197 equates to a capacity of approximately 90% of the capability which is well above that required by the design load profile.

The staff reviewed the licensee's proposals and the additional justifications provided. The staff has not based the acceptability of the above changes on a comparison of the proposed values to the STS. Our evaluation is based upon the licensee's proposed safety improvements which are in excess of the current Farley TS requirements. The licensee proposes the format (Table 4.8-2) in conformance with the STS. Also, the licensee proposes Category A and B limits of greater than or equal to 2.08 volts with an additional requirement that the average float voltage be greater than 2.13 volts in order for the battery to be operable.

We conclude that Category A and B limits of greater than or equal to 2.08 volts with the additional requirement of an average float voltage of 2.13 volts are enhancements of the reliability of the d.c. supply systems and, therefore, are acceptable alternatives.

3. The STS criteria requires declaring the batteries inoperable if the connection resistance or electrolyte temperature values deviate from the STS limits. The proposed TS allows a 24 hours action period to correct either temperature or connection resistance deviation without declaring the battery inoperable. IEEE Standard 450-1980, sections 4.4.1 (2) and 4.4.1 (3) states that the 5°F temperature and connection resistance deviations are merely an indication of conditions that can be easily corrected prior to the next general inspection. Also, the Standard does not state that these are indications on which the battery should be declared inoperable.

The staff has reviewed the above proposals and the licensee's justification. The staff agrees with the justification based on IEEE Standard 450-1980. However, the staff has based acceptability of the 24 hours action period for corrective action upon safety improvements which are more stringent than the current TS requirements. Therefore, the proposed TS regarding the period for corrective action is acceptable.

4. The STS specify a maximum resistance of 150 microhms of each cell to cell and terminal connection. The licensee proposed a resistance of 1500 microhms from post to post for the connection resistance check on the Service Water Building d.c. distribution system batteries.

This battery has adequate capacity to supply a load current of 25 amperes for one minute and 1 ampere for 2 hours. The charger will supply at least 3 amperes for at least 4 hours. This battery bank consists of 20 castings, each casting contains three cells of the battery. Therefore, there are 19 connectors and the resistance of each connector for three cells is 1500 microhms. The voltage drop per connector is calculated as 0.0375 volts based on 25 amperes with a total system voltage drop in the d.c. battery bank of 0.7125 volts.

The system voltage drop of the Service Water Building battery bank is far less than that of a large size battery covered by the STS. The drop is less than 0.6% of system float charging voltage and system battery discharging voltage. The proposed resistance will not result in system charging and discharging voltage degradation and, therefore, is acceptable.

- 5. In accordance with the STS, all battery charger test amperages and times should be based on the actual system design standard. The licensee states that this is the case. Therefore, TS 4.8.2.3.2.c.4 which shows the charger test amperages of at least 536 amperes at greater than or equal to 125 volts for at least four hours is acceptable.
- 6. After receipt of our Generic Letter (GL) 83-27 dated July 6, 1983, the licensee, by letter dated July 29, 1983, withdrew the portion of the May 3, 1983 proposed change involving an extension of the 18-month surveillance intervals to 24-months. This was to be a minor administrative change to accommodate future 18-month refueling intervals. However, GL 83-27 disallowed such a change.
- 7. The licensee proposed changes to TS 3.8.2.4, Auxiliary Building D.C. Distribution Shutdown, to comply with the STS for operating modes 5 and 6 with the exception of the part relating to depressurizing the reactor coolant system through a vent. The existing design at Farley of a low pressure depressurizing system does not utilize power from the Auxiliary Building D.C. Distribution System. Therefore, this part of the STS is not applicable to Farley. The proposed changes which conform to the intent of the STS are acceptable.

Safety Summary

Based on our extensive review of licensee submittals, as well as numerous discussions which we held with the staff of the licensee, and the specific details of the evaluation as noted above, we conclude that the proposed changes to the Technical Specifications are acceptable. The changes constitute a desirable safety improvement in surveillance requirements of the d.c. power distribution at Farley site. The changes are clearly within Commission acceptable criteria for battery system surveillances, conform to NUREG-0452 with acceptable alternatives, and are within the original license basis for the facility.

Environmental Consideration

These amendments involve a change in the installation or use of the facilities components located within the restricted areas as defined in 10 CFR 20. The staff has determined that these amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet

the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 24, 1985

Principal Contributors:

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