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R. Ballard
NSIC
ASLAB

Docket No. 50-348

Mr. F. L. Clayton
Senior Vice President
Alabama Power Company
Post Office Box 2641
Birmingham, Alabama 35291

Dear Mr. Clayton:

The Commission has issued the enclosed Amendment No. 26 to Facility Operating License No. NPF-2 for the Joseph M. Farley Nuclear Plant, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated December 15, 1980, supplemented by letters dated May 28 and September 22, 1981. In addition, the amendment is responsive to your applications dated June 20, October 10 and 15, 1979, and January 8, February 28, March 28, May 19 and June 2, 1980 and February 2, October 28 and November 16, 1981; supplemented by letters dated March 1 and 20, April 16 and July 11, 1979, and April 7, July 14 and 17, August 7, September 2 and 10 (2 letters), 1980, and July 13, October 14, and October 23, November 6, 18 and 23, and December 4 and 8, 1981.

This amendment reissues the entire Technical Specifications for Unit 1, and is based on the current Unit 2 Technical Specifications (including all amendments through Amendment 11) as the base line for changes, where appropriate, to the existing Unit 1 Technical Specifications. This reissuance of the Unit 1 Technical Specifications also includes and incorporates the existing 25 amendments to the Unit 1 Technical Specifications.

The amendment incorporates changes that can be categorized as follows:

1. Where the plant design and operation of Unit 1 and Unit 2 are the same, the Unit 1 Technical Specifications in those areas have been revised and clarified to be consistent with and unified to the more recently licensed Unit 2 Technical Specifications. This minimizes the potential for confusion and for Technical Specification violations and allows you to provide a consistent set of operating, maintenance, and surveillance procedures for the essentially identical units.

2. While the review associated with Item 1 above was under way, staff review of other generic issues or plant-specific items applicable to Unit 1 has been completed. Technical Specifications associated with those issues have been incorporated in this amendment. Among the more significant of these issues are Technical Specifications for: Radiological Environmental Reporting of Appendix I; hydraulic and mechanical snubbers; degraded grid voltage; definition of operability of safety related equipment; decay heat removal surveillance; auxiliary feedwater system; containment air-lock testing; containment purge and venting; organizational changes; fire protection equipment; F_Q change to allow steam generator tube plugging of the first row tubes; and improvements in diesel generator operation and surveillance.

OFFICE						
SURNAME	8203150193 820301 PDR ADOCK 05000348 P PDR					
DATE						

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY USGPO: 1981—335-960

3. We have prepared the Environmental Protection Plan (EPP) to replace the existing Unit 1 non-radiological Environmental Technical Specifications (ETS). We have also prepared an Environmental Impact Appraisal (EIA) addressing the deletion of the Unit 1 ETS requirements.

We have made changes to some of your proposals which have been discussed with and agreed to by your staff.

Copies of the Safety Evaluation and Environmental Impact Appraisal and the Notice of Issuance/Negative Declaration are also enclosed.

Sincerely,

Edward A. Reeves, Project Manager
Operating Reactors Branch No. 1
Division of Licensing

Enclosures:
1. Amendment No. 26 to NPF-2 (includes Environmental Protection Plan)
2. Safety Evaluation
3. Environmental Impact Appraisal for Changes to Environmental Technical Specifications
4. Notice of Issuance/Negative Declaration

cc: See next page

SEE PREVIOUS NRC FORM 318 FOR CONCURRENCES*

OFFICE	ORB 1 *	ORB 1 *	ORB 1 *	AD:OR*	OELD*	LGB*	
SURNAME	CParrish	EReeves/rs	SVarga	TNovak		DSkovholt	
DATE	02/ /82	02/ /82	02/ /82	02/ /82	02/ /82	02/ /82	

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY USGPO: 1981—335-96

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cc: See next page

Concurrence faxed on correct format of ltr, encl, Notice

Note: See previous concurrences on 2/11/82 & 12/29/81

FR NOTICE & AMENDMENT ONLY

SEE PREVIOUS NRC FORM 318 FOR CONCURRENCES*

OFFICE	ORB 1	ORB 1	ORB 1	AD:OR	OELD	LGB*	
SURNAME	CParrish	EReeves/rs	Svinga	TNovak		DSkovholt	
DATE	2/19/82	2/19/82	2/19/82	2/25/82	2/25/82	2/12/82	

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Docket No. 50-348

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Senior Vice President
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Post Office Box 2641
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This amendment reissues as NUREG-0869 the entire Technical Specifications for Unit 1, and is based on the current Unit 2 Technical Specifications (including all amendments through Amendment 11) as the base line for changes, where appropriate, to the existing Unit 1 Technical Specifications. This reissuance as NUREG-0869 for the Unit 1 Technical Specifications also includes and incorporates the existing 25 amendments to the Unit 1 Technical Specifications.

The amendment incorporates changes that can be categorized as follows:

1. Where the plant design and operation of Unit 1 and Unit 2 are the same, the Unit 1 Technical Specifications in those areas have been revised and clarified to be consistent with and unified to the more recently licensed Unit 2 Technical Specifications. This minimizes the potential for confusion and for Technical Specification violations and allows you to provide a consistent set of operating, maintenance, and surveillance procedures for the essentially identical units.

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Sincerely,

Edward A. Reeves, Project Manager
Operating Reactors Branch No. 1
Division of Licensing

Enclosures:
1. Amendment No. 26 to NPF-2 (includes NUREG-0869 and Environmental Protection Plan)
2. Safety Evaluation
3. Environmental Impact Appraisal for Changes to Environmental Technical Specifications
4. Notice of Issuance/Negative Declaration

cc: See next page

Note: see previous concurrence 12/29/81

OFFICE	ORB 1	ORB 1	ORB 1	AD:OR	OELD	LGB	
SURNAME	CParrish	EReeves/rs	SVarga	TNovak		DSkovholt	
DATE	2/11/82	2/11/82	2/17/82	2/.../82	2/.../82	2/17/82	

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY USGPO: 1981—335-960

Mr. F. L. Clayton
Alabama Power Company

March 1, 1982

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

Ruble A. Thomas, Vice President
Southern Company Services, Inc.
Post Office Box 2625
Birmingham, Alabama 35202

George F. Trowbridge, Esquire
Shaw, Pittman, Potts and Trowbridge
1800 M Street, N.W.
Washington, D. C. 20036

Chairman
Houston County Commission
Dothan, Alabama 36301

Robert A. Buettner, Esquire
Balch, Bingham, Baker, Hawthorne,
Williams and Ward
Post Office Box 306
Birmingham, Alabama 35201

George S. Houston Memorial Library
212 W. Burdeshaw Street
Dothan, Alabama 36303

Resident Inspector
U. S. Nuclear Regulatory Commission
Post Office Box 24-Route 2
Columbia, Alabama 36319

State Department of Public Health
ATTN: State Health Officer
State Office Building
Montgomery, Alabama 36104

Regional Radiation Representatives
EPA Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

D. Biard MacGuineas, Esquire
Volpe, Boskey and Lyons
918 16th Street, N.W.
Washington, D.C. 20006

Charles R. Lowman
Alabama Electric Corporation
P.O. Box 550
Andalusia, Alabama 36420

Mr. R. P. McDonald
Vice President - Nuclear Generation
Alabama Power Company
P.O. Box 2641
Birmingham, Alabama 35291

James P. O'Reilly
Regional Administrator - Region II
U. S. Nuclear Regulatory Commission
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

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. 26
License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Alabama Power Company (the licensee) dated December 15, 1980, supplemented by letters dated May 28 and September 22, 1981, and applications dated June 20, October 10 and 15, 1979, and January 8, February 28, March 28, May 19 and June 2, 1980, and February 2, October 28 and November 16, 1981; supplemented by letters dated March 1 and 20, April 16 and July 11, 1979, and April 7, July 14 and 17, August 7, September 2 and 10 (2 letters), 1980, and July 13, October 14, and 23, November 6, 18 and 23, and December 4 and 8, 1981;

   B. The facility will operate in conformity with the applications, the provisions of the Act, and the rules and 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 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.

2. 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:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 26, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of March 1, 1982. Each section of the upgraded Technical Specifications shall be implemented no later than 60 days following entry into Mode 1 following the present refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 1, 1982

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 26 TO FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

1. Revise Appendix A as follows:

   Replace the Appendix A portion of the Technical Specifications in its entirety with the attached upgraded Appendix A, designated as NUREG-0869.

2. Replace Appendix B as follows:

   Replace the Appendix B portion of the Technical Specifications in its entirety with the attached upgraded Appendix B, designated as the Environmental Protection Plan.

APPENDIX B

TO FACILITY LICENSE NO. NPF-2

JOSEPH M. FARLEY NUCLEAR PLANT

UNIT 1

ALABAMA POWER COMPANY

DOCKET NO. 50-348

ENVIRONMENTAL PROTECTION PLAN

AMENDMENT NO. 26

JOSEPH M. FARLEY NUCLEAR PLANT

UNIT NO. 1

ENVIRONMENTAL PROTECTION PLAN

(NON-RADIOLOGICAL)

TABLE OF CONTENTS

1.0 Objectives of the Environmental Protection Plan

The Environmental Protection Plan (EPP) is to provide for protection of environmental values during construction and operation of the nuclear facility. The principal objectives of the EPP are as follows:

(1) Verify that the plant is operated in an environmentally acceptable manner, as established by the FES and other NRC environmental impact assessments.

(2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.

(3) Keep NRC informed of the environmental effects of facility construction and operation and of actions taken to control those effects.

Environmental concerns identified in the FES which relate to water quality matters are regulated by way of the licensee's NPDES permit.

2.0 Environmental Protection Issues

In the FES-OL dated December 1974, the staff considered the environmental impacts associated with the operation of the two-unit Farley Nuclear Plant. Certain environmental issues were identified which required study or license conditions to resolve environmental concerns and to assure adequate protection of the environment.

2.1 Aquatic Issues

1. The need for aquatic monitoring programs to confirm that thermal mixing occurs as predicted, that chlorine releases are controlled within those discharge concentrations evaluated, and that effects on aquatic biota and water quality due to plant operation are no greater than predicted.

2. The need for special studies to document levels of intake entrainment and impingement.

(FES-OL: Summary and Conclusions and Sections 6.2, 6.3, and 6.6)

Aquatic issues are addressed by the effluent limitations, monitoring requirements and the Section 316(b) demonstration requirement contained in the effective NPDES permit issued by EPA-Region IV and now implemented by the Alabama

Water Improvement Commission. The NRC will rely on these agencies for regulation of matters involving water quality and aquatic biota.

2.2 Terrestrial Issues

1. Potential impacts on the terrestrial environment associated with drift from the mechanical draft cooling towers. (FES-OL Section 6.5)

2. Potential increase in fogging associated with operation of the mechanical draft cooling towers. (FES-OL Section 6.5).

3. Potential erosion and visual effects along transmission line corridors and at highway crossings, respectively. (FES-OL Sections 4.2, 5.4.4.1, 11.2).

4. The need for controlled used of herbicides on transmission rights-of-way. (FES-OL Sections 4.2, 5.4.4.2, 11.2)

5. The need for documentation of the licensee's commitment to conduct a land management program. (FES-OL Sections 5.2 and 6.5)

NRC requirements with regard to the terrestrial issues 1, 4 and 5 above are specified in Subsection 4.2 of this EPP. Issues 2 and 3 above have been resolved as described in the Environmental Impact Appraisal supporting Amendment No. 26 to the Farley Unit 1 Operating License, dated March 1, 1982.

3.0 Consistency Requirements

3.1 Plant Design and Operation

The licensee may make changes in station design or operation or perform tests or experiments affecting the environment provided such changes, tests or experiments do not involve an unreviewed environmental question, and do not involve a change in the Environmental Protection Plan.* Changes in plant design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Section 3.3 are not subject to the requirements of this section.

Before engaging in additional construction or operational activities which may affect the environment, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activities and obtain prior approval from the Director, Office of Nuclear Reactor Regulation. When such activity involves a change in the Environmental Protection Plan, such activity and change to the Environmental Protection Plan may be implemented only in accordance with an appropriate license amendment as set forth in Section 5.3.

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the final environmental statement (FES) as modified by staff's testimony to

*This provision does not relieve the licensee of the requirements of 10 CFR 50.59.

the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level [in accordance with 10 CFR Part 51.5(b)(2)] or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a significant adverse environmental impact.

The licensee shall maintain records of changes in facility design or operation and of tests and experiments carried out pursuant to this Subsection. These records shall include a written evaluation which provide bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question nor constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0. The licensee shall include as part of his Annual Environmental Operating Report (per Subsection 5.4.1) brief descriptions, analyses, interpretations, and evaluations of such changes, tests and experiments.

3.2 Reporting Related to the NPDES Permits and State Certifications

Violations of the NPDES Permit or the State certification (pursuant to Section 401 of the Clean Water Act) shall be reported to the NRC by submittal of copies of the reports required by the NPDES Permit or certification. The licensee shall also provide the NRC with copies of the results of the following studies at the same time they are submitted to the permitting agency:

i) Section 316(b) Demonstration Study

ii) Chlorine Minimization Study

Changes and additions to the NPDES Permit or the State certification shall be reported to the NRC within 30 days following the date the change is approved. If a permit or certification, in part or in its entirety, is appealed and stayed, the NRC shall be notified within 30 days following the date the stay is granted.

The NRC shall be notified of changes to the effective NPDES Permit proposed by the licensee by providing NRC with a copy of the proposed change at the same time it is submitted to the permitting agency. The notification of a licensee-initiated change shall include a copy of the requested revision submitted to the permitting agency. The licensee shall provide the NRC a copy of the application for renewal of the NPDES permit at the same time the application is submitted to the permitting agency.

3.3 Changes Required for Compliance with Other Environmental Regulations

Changes in plant design or operation and performance of tests or experiments which are required to achieve compliance with other Federal, State, or local environmental regulations are not subject to the requirements of Section 3.1.

4.0 Environmental Conditions

4.1 Unusual or Important Environmental Events

Any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to plant operation shall be recorded and promptly reported to the NRC within 24 hours by telephone, telegraph, or facsimile transmissions followed by a written report per Subsection 5.4.2. The following are examples: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, increase in nuisance organisms or conditions and unanticipated or emergency discharge of waste water or chemical substances.

No routine monitoring programs are required to implement this condition.

4.2 Environmental Monitoring

4.2.1 Aerial Remote Sensing

Vegetation communities of the site and vicinity within 1 kilometer of the cooling towers in all directions shall be aerially photographed to detect and assess the significance of damage, or lack thereof, as related to cooling tower drift dispersions. Photography shall be done by aerial overflight during May or June. Monitoring shall include a program of low altitude false color aerial photography (either color infrared photography or multispectral or multiband photography). The scale for full coverage shall be adequate to

enable identification of vegetative damage over relatively small areas of terrain. Some circumstances may warrant inspection of photographs discerning individual trees. Such scale should be in the interval between 1:1000 and 1:12,000 as appropriate to resolve impacted features.

Photographs shall be compared with baseline to ascertain changed vegetation. Photographic interpretations shall correlate data from ground truth from ground inspection surveys with areas of stress and non-stress as seen on the photographs for purposes of verification of results and interpretation. Ground truth surveys shall be performed during the aerial photographic monitoring for two-unit operation. This program shall require aerial photographic monitoring during the first May-June period after Unit 2 has been in operation for one year and the program shall be repeated once during the same period two years later. A report shall be submitted as part of the annual report following each aerial photographic monitoring period. The report shall contain a description of the program, results, and interpretative analyses of environmental impacts. Results reported shall contain information encompassing but not limited to the following: sampling date; time of day; film types; spectral bands; and one (1) set of resultant color transparencies encompassing an area within approximately a one kilometer (1 km) radius of the Unit 1 and 2 towers.

4.2.2 Herbicide Application

The use of herbicides within the following corridor rights-of-way shall conform to the approved use of selected herbicides as registered by the Environmental

Protection Agency and approved by State authorities and applied as directed by said authorities:

i) Farley to Pickard-South 230KV

ii) Farley to Webb to Pickard 230KV

iii) Farley to Snowdown 500KV

Records shall be maintained in the appropriate division office concerning herbicide use. Such records shall include the following information: commercial and chemical names of materials used; concentration of active material in formulations diluted for field use; diluting substances other than water; rates of application; method and frequency of application; location; and the date of application. Such records shall be maintained for a period of 5 years and be made readily available to the NRC upon request. There shall be no routine reporting requirement associated with this condition.

4.2.3 Land Management

There shall be a land management program instituted at the FNP to provide for revegetation of site areas impacted during construction as described in Section 5.2 of the FES-OL. This program requires landscaping of certain areas around the plant buildings and the revegetation and management of the remainder of the site as a wildlife refuge. There shall be no reporting requirement associated with this condition.

5.0 Administrative Procedures

5.1 Review and Audit

The licensee shall provide for review and audit of compliance with the Environmental Protection Plan. The audits shall be conducted independently of the individual or groups responsible for performing the specific activity. A description of the organization structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

Records and logs relative to the environmental aspects of plant operation shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to NRC on request.

Records of modifications to plant structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the plant. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

Request for change in the Environmental Protection Plan shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence prior to NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the Environmental Protection Plan.

5.4 Plant Reporting Requirements

5.4.1 Routine Reports

An Annual Environmental Operating Report describing implementation of this EPP for the previous year shall be submitted to the NRC prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following issuance of the operating license. The period of the first report shall begin with the date of issuance of the operating license.

The report shall include summaries and analyses of the results of the environmental protection activities required by Subsection 4.2 of this Environmental Protection Plan for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous non-radiological environmental monitoring reports, and an assessment of the observed impacts of the plant operation on the environment. If harmful effects or evidence of trends towards irreversible damage to the environment are observed, the licensee shall provide a detailed analysis of the data and a proposed course of action to alleviate the problem.

The Annual Environmental Operating Report shall also include:

(a) A list of EPP noncompliances and the corrective actions taken to remedy them.

(b) A list of all changes in station design or operation, tests, and experiments made in accordance with Subsection 3.1 which involved a potentially significant unreviewed environmental issue.

(c) A list of nonroutine reports submitted in accordance with Subsection 5.4.2.

In the event that some results are not available by the report due date, the report shall be submitted noting and explaining the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

5.4.2 Nonroutine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of nonroutine event. The report shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and plant operating characteristics, (b) describe the probable cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (e) indicate the agencies notified and their preliminary responses.

Events reportable under this subsection which also require reports to other Federal, State or local agencies shall be reported in accordance with those reporting requirements in lieu of the requirements of this subsection. The NRC shall be provided a copy of such report at the same time it is submitted to the other agency.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 26 TO FACILITY OPERATING LICENSE NO. NPF-2

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 1

DOCKET NO. 50-348

Introduction

By letters dated May 28 and September 22, 1981, supplementing application for amendment dated December 15, 1980, and following discussions between NRC staff and the Alabama Power Company (APCo), licensee, APCo provided a comprehensive review of the present Unit 1 Technical Specifications (TSs). APCO proposed new Unit 1 Technical Specifications which, to the extent practicable, were consistent and uniform with the recently-licensed Unit 2 Technical Specifications.

At Farley site reactor operation and control is accomplished in a dual-type control room where controls and reactor operators for each unit are located. The plant design for both units is generally identical with some differences as described in the Final Safety Analysis Report for Joseph M. Farley Nuclear Plant. Consequently, consistency and uniformity between the Unit 1 and Unit 2 Technical Specifications to the extent appropriate, will minimize the potential for confusion and Technical Specification violations and allow a consistent basis for operating, maintenance, and surveillance procedures for both units.

In addition, during the period of our review and discussions with APCo of their proposed Unit 1 Technical Specifications, staff review was completed on several generic issues and plant-specific amendment requests. The results of our review for these items are discussed below. Technical Specifications associated with these issues have been incorporated into the associated license amendment.

Discussion and Evaluation

1. Proposed Changes to the Unit 1 Technical Specifications that have been Made Identical to the Unit 2 Technical Specifications

   We conducted a complete review of the changes proposed by APCo for the Unit 1 TSs. These changes are a verbatim incorporation of the Unit 2 TSs. In general, these changes involved clarification and wording changes of the present Unit 1 Technical Specifications. In some instances, these changes involved improvements in surveillance requirements and some added restrictions on Limiting Conditions for Operation (LCO) consistent with the Unit 2 Technical Specifications. In addition, the Technical

Specifications for NUREG 0737, "Clarification of TMI Action Plan Requirements" items included in the Unit 2 Technical Specifications at the time of licensing of Unit 2 have been incorporated in the proposed Unit 1 Technical Specifications.

We find these changes acceptable on the basis of the previous approval of the Unit 2 Technical Specifications and that identical considerations apply to Unit 1.

2. Appendix I Radiological Environmental TSs

By letter dated April 11, 1978 to "All Power Reactor Licensees" the NRC issued generic guidance on radiological environmental monitoring for nuclear power plants. APCo responded by letter dated November 27, 1978 advising of its plans to develop TSs concurrently for Units 1 and 2 during Unit 2 licensing. APCo provided other related information by letters of April 16 and July 11, 1979, and April 7, July 14 and 17 and September 2, 1980. We met with APCo representatives and held numerous discussions concerning this issue during the Unit 1 review as well as during the Unit 2 licensing review.

In conclusion, Technical Specifications were proposed by APCo by application dated October 10, 1979 and TSs were issued for Unit 2 as part of Operating License No. NPF-8. Technical Specifications for Unit 1 included herein are identical to those of Unit 2 except for some minor changes clarifying the current staff positions, and are acceptable.

3. Hydraulic and Mechanical Snubbers TSs

By letter dated November 20, 1980 from the NRC to "All Power Reactors Licensees" we proposed Revision 1 of the Inservice Surveillance Requirements for snubbers under Standard Technical Specifications (STS). The revision embodies several changes, clarifications and improvements based on recent operating experience. APCo responded by letter dated March 20, 1981, stating that work being done for IE Bulletin 79-14 has identified numerous changes to the TSs. These changes were included in APCo's proposed amendment supplement dated May 28, 1981.

APCo proposed to follow the Standard Technical Specifications (STS) closely with one minor deviation. It does not have the hands-on inspection of some snubbers in locations difficult to reach. However, a visual inspection of these relatively few snubbers will be performed and an appropriate sample of these snubbers will be included in the functional test sample of 88 snubbers being tested every 18 months. Thus, we agree that hands-on inspection of all of the snubbers will not be required. In addition, we have agreed with APCo's proposal relating to test equipment for snubbers above 50,000 lb. capacity. These snubbers will not be required to be tested until the refueling outage after a commercial in-place testing device is available. We find the minor deviations from Standard Technical Specifications acceptable.

In addition, a previous application from APCo dated October 15, 1979 submitted an administrative change to correct TS Table 3.7-4 errors. These errors included erroneous designation of single or double snubbers, erroneous snubber numbers, and snubbers omitted from the Table when Unit 1 was licensed. These errors have been corrected.

4. Degraded Grid Voltage TSs

By letter of August 30, 1977 we provided information to APCo relating to NRC staff generic concerns about degradation of the Offsite Power Systems. These concerns were described in events at Millstone Unit 2 during July 1976 in which equipment failed onsite during degraded grid conditions. Our letter dated March 9, 1981 provided our evaluation of APCo responses to the generic issues applicable to both Units 1 and 2. By supplemental application dated May 28, 1981, APCo proposed TSs for Unit 1. The TSs found acceptable during Unit 2 licensing review are now incorporated into the TSs for Unit 1 and are acceptable.

5. Auxiliary Feedwater Pump

By application dated February 28, 1980 APCo proposed changes to the TSs relating to automatic start of the motor driven auxiliary feed pumps. By our letter dated June 17, 1981 we provided an evaluation of the reliability of the AFW System for Unit 1. The evaluation referred to APCo's responses to our generic concerns and requirements forwarded by letter dated October 13, 1979. During the NRC staff Unit 2 licensing review the design of Farley Nuclear Plant (Units 1 and 2) AFW System was re-evaluated.

Technical Specifications issued on Unit 2 resolved the AFW issues and identical TSs are now included in the TSs for Unit 1 AFW system (identical to Unit 2 system) and are acceptable.

6. Definition of Operability TSs

By letter of April 10, 1980 to "All Power Reactor Licensees" the NRC staff provided clarification of the term OPERABLE as it applies to the single failure criterion for safety systems. By letter dated June 2, 1980 APCo proposed TS changes for Section 3.0.5.

We completed the review (applicable to both Units 1 and 2) of this item during the licensing review of Unit 2 and identical Technical Specifications are herein issued for Unit 1 as were issued for Unit 2 and are acceptable.

7. The Environmental Protection Plan and Four Special Environmental Reports

By letter of May 19, 1980 APCo proposed changes to the non-radiological Environmental TSs Appendix B. In response to this application and supplementary APCo letters of March 1, 1979, and July 13, 1981, an Environmental Protection Plan (EPP) was developed for Unit 2. We have included an EPP for Unit 1 which is the Appendix B in this license amendment. The attached Environmental Impact Appraisal addresses the non-radiological Technical Specifications deleted from the existing Unit 1 Technical Specifications.

8. Fire Protection Evaluation Supplement TS

On April 13, 1979, we issued Amendment No. 11 to Facility Operating License No. NPF-2 for Joseph M. Farley Nuclear Plant Unit No. 1. By the transmittal letter we requested APCo to provide TS's for completed modifications described in Tables 1, 2 and 3 of the safety evaluation included in our April 13, 1979 letter.

By letter dated January 8, 1980 APCo provided the TS for plant modifications completed to date which we find acceptable on the basis of the safety evaluation included in our April 13, 1979 letter.

9. TSs Notation for the Appendix J Exemption Granted on Unit 2 for Containment Airlock Leak Testing

By letter dated February 2, 1981, APCo requested an exemption for Farley Nuclear Plants, Units 1 and 2 from certain requirements of 10 CFR Part 50, Appendix J, paragraph III.D.2(b)(ii), which states:

> "Air locks opened during periods when containment integrity is not required by the plant's Technical Specifications shall be tested at the end of such periods at not less than Pa."

Our evaluation is contained in SER Supplement No. 5 dated March 1981 for Unit 2 and is directly applicable to Unit 1. TSs were issued for Unit 2 with the operating license for Unit 2. The TSs for Unit 1 are identical to the Unit 2 TSs and are acceptable.

10. Decay Heat Removal TS

By letter dated June 11, 1980 "To All Operating Pressurized Water Reactors" we requested changes to the TSs. These changes resulted from a number of events at operating facilities where decay heat removal capability has been degraded. The generic letter stated that the cause of degradation was inadequate administrative controls while in the shutdown mode. IE Bulletin 80-12 dated May 9, 1980 had requested immediate implementation of administrative controls. Our action in the June 11, 1980 letter was to provide for permanent long term assurance that redundancy in decay heat removal capability would be maintained.

By letter of September 10, 1980 APCo proposed that the Unit 1 TSs be implemented after Unit 2 TSs were issued with the operating license. Thus, this issue was resolved and implemented by the issuance of the TSs for the Unit 2 operating license. Identical considerations apply to Unit 1, and the Unit 1 Technical Specifications herein are identical to Unit 2 and are acceptable.

11. Containment Purge and Vent TSs

By letter dated June 20, 1979 APCo proposed TSs for containment purge and vent valves. Our Interim Position of October 1979 delayed action on the APCo application. However, during Unit 2 licensing review we issued TSs to include maintaining the 48-inch purge valves closed, operability of the 18-inch mini-purge valves, and associated surveillance checks. Identical considerations apply to Unit 1, thus, TSs for Unit 1 identical to Unit 2 TSs are included herein and are acceptable.

12. TSs for Organizational Changes Consolidating Nuclear Program Under One Executive Officer

By letter dated March 28, 1980 APCo proposed organizational changes to consolidate their nuclear program under one executive officer. Other facility (site) organizational changes were made to enhance the daily and long term operation of the plant. No positions were deleted by this change.

During the licensing review of Unit 2, the APCo organization, applicable to both Units 1 and 2, was evaluated by the NRC staff and found acceptable. The Unit 1 TSs included herein are identical to those of Unit 2 and are acceptable.

13. Heat Flux Hot Channel Factor Equation Change for Plugging First Row Steam Generator Tubes

By letter dated November 16, 1981, APCo proposed to plug the first row tubes of all steam generators on Farley Nuclear Plant (FNP) Unit 1 during the current outage. This plugging corresponds to a tube plugging level higher than that assumed in the FNP large break ECCS analysis currently on file with the NRC. Accordingly, APCo has performed an ECCS reanalysis. The results of this analysis show that a TS change to the F_Q limit is necessary to meet the ECCS acceptance criteria of 10 CFR 50.46.

APCo has submitted an ECCS re-analysis assuming 5% uniform plugging of the steam generator tubes (Ref. 1, 3). The analysis was performed with the approved version of the Westinghouse evaluation model (February 1978). The analysis assumed a limiting break discharge coefficient (C_D) of 0.4 an F_Q limit of 2.32 and a steam generator tube plugging level of 5%. This resulted in a peak cladding temperature (PCT) of 2182°F. The licensee also assessed the fuel rod burst and blockage model penalties against the above Farley plant ECCS analysis using NRC fuel rod models. The plant was shown to meet the acceptance criteria of 10 CFR 50.46 for the limiting break (C_D=0.4, steam generator tube plugging level of 5.0%) with a reduction of F_Q penalty of 0.16.

The effect of LOCA analysis results of using improved analytical and modeling techniques in the reactor coolant system blowdown calculation is being reviewed by the NRC staff. Since the review of this analysis

is not yet complete and the benefits associated with the model improvements varies with plant design the staff has established a credit that is acceptable for this interim period to help offset penalties resulting from application of the NRC fuel rod models. The credit for three loop plants is an increase in the LOCA peaking factor limit of 0.15.

The peaking factor limit adjustment for this interim period is determined from the difference of the ΔF_Q credit for model improvements minus the ΔF_Q penalty for the fuel rod burst and blockage. The F_Q adjustment is 0.15 - 0.16 = -0.01 and the F_Q = 2.32 used in the LOCA analysis must be reduced to 2.31. Thus a change to Technical Specification 3.2.2 is required to revise the F_Q limit from 2.32 to 2.31 for power above 50% of rated power and from 4.64 to 4.62 for power less than 50% of rated.

The heat flux hot channel factor $F_Q(Z)$ shall be limited by the following relationship:

$$F_Q(Z) \leq \frac{[2.31]}{P} [K(2)] \text{ for } P > 0.5$$

$$F_Q(Z) \leq [4.62] [K(Z)] \text{ for } P < 0.5$$

where $P = \frac{\text{Thermal Power}}{\text{Rated Thermal Power}}$

and K(Z) is the function obtained from Figure 3.2-2 for a given core height location.

The licensee presented supplemental analysis (Ref. 2) addressing the elevation dependent peaking factor versus core height for the Unit 1 and 2 fuel cycle that support the validity of Figure 3.2-2 of the Farley Technical Specifications. F_Q x relative power was calculated as a function of height by imposing various load following transients. In all cases the calculated

values are maintained below the nuclear design operating envelope 2.31 x K(Z) where I(Z) is the normalized $F_Q(Z)$ function shown on Figure 3.2-2. Therefore, Figure 3.2-2 in the Technical Specifications remains valid for the 5% tube plugging limit and has been so annotated.

The licensee provided assurance that the limiting break remained the double ended cold leg guillotine (DECLG) with a discharge coefficient (C_D) of 0.4 by referring to previous sensitivity studies on other three loop plants (Ref. 4). For these plants tube plugging analysis for plugging levels ranging from 0% to 28% show that the worst break remains the DECLG with a C_D = 0.4. The licensee also did a reanalysis for a DECLG with a C_D = 0.6 which resulted in a lower peak cladding temperature.

Sensitivity studies performed by APCo indicate an approximate increase of 6.8°F in calculated peak clad temperature per percent of tube plugging for large breaks (due to steam binding occurring from reduced flow area in steam generator). Since current analyses indicate a 500°F margin between the limiting large break and the limiting small break the small breaks will not become the most limiting break and current small break analyses are still valid.

Since the reanalysis with an F_Q limit equal to 2.31 shows that the Farley Nuclear Plant Units 1 and 2 are in conformance with the ECCS Acceptance Criteria of 10 CFR 50.46 it is acceptable to plug the steam generators of both units to a level of 5%.

The licensee assessed the effect of the 5% proposed steam generator plugging level on their current non-LOCA transient analyses. Plugging the steam generator tubes to the 5% level was calculated to increase the core inlet temperature 1.6°F with an accompanying increase in the core average temperature. With this increase the core average temperature (T_{avg}) will remain below the design basis T_{avg} value used in the non-LOCA transients. The licensee states (Ref. 4) that the margin between the best estimate flow and the thermal design flow used in the safety analysis is conservative. The estimated flow reduction of 1.2% expected with 5% tube plugging still provides a 7% margin which exceeds the flow allotment for measurement and hydraulic inaccuracies. Therefore, the results of the non-LOCA transients are still valid and there is no change in the DNBR analyses due to steam generator plugging to a level of 5%.

We have concluded, based on the considerations discussed above, that proposed modification to the steam generators does not impose an undue risk to the health and safety of the public and the Technical Specification changes are acceptable as modified. We will issue the identical changes for Unit 2 in the future.

REFERENCES

1. Letter from F. L. Clayton, Jr., Alabama Power Company to S. A. Varga, NRC, dated November 16, 1981.

2. Letter from F. L. Clayton, Jr., Alabama Power Company to S. A. Varga, NRC, dated November 18, 1981.

3. Letter from F. L. Clayton, Jr., Alabama Power Company to S. A. Varga, NRC, dated November 23, 1981.

4. Letter from F. L. Clayton, Jr., Alabama Power Company to S. A. Varga, NRC, received December 4, 1981.

14. Modification to River Water System Action Statement for Specification 3.7.5

The river water system at Farley site consists of two trains with five pumps dedicated to each train. A total of ten river water pumps are available to serve the two-unit facility. The river water system feeds water to the service water pond. Pond water then enters the service water wet pit at one end of the pond. The service water wet pit is a common intake structure for the Unit 1 and Unit 2 service water systems.

The service water pond has been designed to Seismic Category I requirements. The pond is designed to serve as a closed cooling system for both units for at least 30 days without any river water makeup by recirculating service water to the common service water wet pit or to the pond.

For Technical Specifications purposes, the ten river water pumps are divided into two loops per unit with two operable river water pumps per loop and one backup river water pump per unit. Only one river water loop (i.e., two pumps) would be required to supply the service water needs for plant shutdown under accident conditions even assuming the loss of the Seismic Category 1 service water pond. For this case the river water is automatically diverted directly into the service water wet pit instead of into the pond.

By supplementaty application dated May 28, 1981 APCo included a proposed change in allowable pump outage time from three to seven days. The basis for the change to TS 3.7.5 Action Statement allowable outage time is as follows:

(1) Only one river water loop is required for plant shutdown under accident conditions.

(2) The service water system acts as a closed cooling system in conjunction with the storage pond (ultimate heat sink) by taking suction from the storage pond and discharging to either the pond or the river as described in the Final Safety Analysis Report (FSAR) Section 9.2.

(3) The service water system is designed to Seismic Category 1 requirements, meets the single failure criteria, and operates independently of the river water system.

(4) The storage pond is designed to Seismic Category 1 requirements and is capable of providing sufficient cooling to both units for at least 30 days with no water makeup, including rainfall, as described in the FSAR Section 9.2.5. Procedures for assuring continued pond availability beyond the 30-day requirement are available in conformance with Regulatory Guide 1.27.

(5) The storage pond dam failure is the only accident case in which the plant is dependent on the river water system as the sole source of cooling water for plant shutdown. The possibility of a storage pond dam failure is extremely remote.

Thus, the Farley Nuclear Plant river/service water systems are unique. The service water pond and the river water system's ability to bypass the normal pond and discharge directly into the common service water wet pit essentially provides for two ultimate heat sinks at the Farley site. We believe that this additional conservatism included in the Farley site design justifies the change in the Action Statement from three to seven days. Therefore, the proposed change to the Action Statement of Specification 3.7.5 is acceptable.

15. Diesel Generator TSs

There are five diesel generators at the two unit Joseph M. Farley Nuclear Plant. Each unit has a large (4075 KW) dedicated diesel generator. In additional there are three diesel generators (one large 4075 KW and two small 2850 KW) capable of serving either unit.

The TSs regarding testing and surveillance of the diesel generators are different for the two units. This is because Unit 1 was licensed with an earlier version of the Standard TSs and Unit 2 was licensed with the NRC's more recent Standard TSs. Alabama Power Company has requested (References 1 and 2) that the TSs regarding diesel generators be revised so that both of the units would be identical. The proposed TSs are similar to the NRC's Standard TSs with modifications made to reflect the uniqueness of the Farley design. In addition, reductions in the amount of diesel generator testing have been made to reflect the manufacturer's concerns about over-testing.

The NRC's Standard TSs are intended for a single unit facility with two diesel generators. When one diesel generator becomes inoperable, it is implied that one of the two redundant safety related trains necessary for shutdown and LOCA loads becomes unavailable. Under these conditions, constant verification of the remaining diesel's operability is desirable. However, the five diesel generators at the Farley plant presents much greater flexibility than that assumed in the NRC's Standard TSs. At Farley, each of the five diesel generators has either an automatic or

manual capability to load one of the safety related shutdown or LOCA trains. Therefore credit, in terms of reduced surveillance and testing requirements, can be given to the Farley TSs due to the increased flexibility provided by this design.

The significant deviations from the NRC's Standard TSs are as follows:

Extending Diesel Generator Start Time From 10 to 12 Seconds

Currently the Farley TS requires that the diesel generators reach rated speed and voltage within 10 seconds after receiving a start signal. However, the FSAR assumes a minimum time of 12 seconds to start the diesels. Therefore, the licensee has proposed revising the start time from 10 to 12 seconds.

Since the licensee's proposal does not violate any of the FSAR analyses, we find the proposed change to be acceptable.

Revised Periodic Testing Schedule

The NRC's Standard TSs recommend the testing schedule given in Regulatory Guide 1.108 for routine periodic surveillance testing. This schedule relates the frequency of testing to the number of test failures at the station (i.e. all diesel generators). The test interval varies in four steps from 31 days to three days.

The licensee and the diesel manufacturer (Colt Industries) have proposed a different test schedule with intervals of 14 days and seven days. The proposal would continue to depend upon test failure experience but on a per diesel basis rather than per station.

The licensee and diesel manufacturer believe that for the diesel units involved a test interval of 31 days is too infrequent to provide reasonable assurance of the diesel's capability to start and provide emergency power. At the other end of the spread, testing every three days on a routine basis is too frequent. The licensee also believes that the test schedule should not be such that failures experienced on a particular diesel adversely affect other diesel units due to additional testing.

The NRC has long been interested in optimizing the testing schedule for emergency diesel generators. Revision 1 of Regulatory Guide 1.108 was published in 1977 and was an effort to improve the test schedule by relating test frequency to failure rate experience. At that time the optimal test interval was believed to be between 31 and three days. We view the licensee/manufacturer's proposal as a more refined optimization. While long term operating experience is not fully available, engineering

judgment based upon experience to date indicates that routinely test starting diesel generators every three days may generate adverse conditions that outweigh the benefits of such an accelerated test frequency. We concur with the concern of excessive testing. We cannot disagree with the manufacturer's recommendation for a maximum test interval of 14 days and see no harmful affects. Further, we agree in general that failures of one diesel generator should not force increased testing of other diesel units. As is discussed further below, after certain immediate plant safety concerns are resolved, there is no safety or reliability advantage to continue testing other units on an accelerated frequency.

In summary, the NRC staff concludes that the optimization of the routine testing schedules proposed by the licensee and diesel manufacturer are positive improvements to diesel reliability. These changes are, therefore, acceptable.

Elimination of the Overload Test

The NRC's Standard TSs require that once every 18 months the diesel generators be run for two hours at the 2-hour rating followed by 22 hours at the 2000-hour rating. The purpose of this test is to verify diesel operability at overload conditions.

Plants that are designed to operate their diesel generators at the 2-hour rating need to perform this test. However, as stated in the FSAR, the diesel generators at the Farley plant will not exceed the 2000-hour rating even under worst case conditions.

Both the diesel manufacturer and the licensee (Reference 3) state that routine overload testing is undersirable and accelerates wear thus promoting detrimental long-term effects on the reliability of the diesel generators. The architectural engineer has stated that automatic loads have been conservatively calculated to fall below the 2000-hour rating of the diesel generators. To further prevent overloading, the licensee's plant procedures prohibit operator action from manually loading the diesel generators above the 2000-hour rating. Therefore, the licensee proposed to run the diesels for 24 hours at the 2000-hour rating but to eliminate overload testing.

We agree with the licensee that overload testing of the diesel generators accelerates wear and will not promote long-term diesel generator reliability. Since the licensee has indicated that there will not be an occasion to operate the diesel generators above the 2000-hour rating, we concur with the licensee that verification of overload operation is not necessary. Therefore, we find the licensee's proposal to be acceptable.

Load Rejection Tests

The present TSs require two different load rejection tests to be performed every 18 months to confirm the capability of the diesel unit to ride through such transients without tripping. One test involves the rejection of the single largest load; the other, the full load.

The licensee proposed to conduct only the single-largest-load rejection test. The licensee's basis for deleting the requirement for the full-load rejection test was that this capability had been demonstrated during previous testing and that the need for periodic reconfirmation was not evident.

In our discussions with the licensee, we indicated that the probability of a single load rejection during diesel operation could not be considered infrequent. The licensee then agreed to demonstrate every 18 months that, if a load rejection approximating the largest single load during a postulated LOCA (i.e., 1000 KW) were to occur, the speed will not encroach the overspeed trip setpoint and the voltage will remain within $\pm$ 10%.

In our discussion we also indicated that we were aware of recent operating experience at a nuclear station where a load rejection greater than the single greatest load has occurred and caused loss of safety-related equipment due to voltage surges. The licensee agreed that in view of this experience a load rejection test to confirm that downstream safety equipment is not lost is worthwhile. It was agreed that such an occurrence is not as likely as loss of a single load; a five-year frequency was agreed upon. This frequency is comparable to the battery total-discharge tests and is appropriate for electrical equipment and for rather infrequent service conditions. As the TSs are presently written, the full-load rejection test is performed by tripping the diesel generator output breaker. Conducting the test in this manner confirms that the diesel does not trip on overspeed but inherently isolates plant safety equipment from the generator's voltage surge. The licensee has devised a test that, by manually tripping two circuit breakers (leaving the diesel generator output breaker closed), a load approaching 50% of rating is rejected and most of the safety-related Motor Operated Valves (MOV's) and inverters are subjected to the generator's voltage surge. The load rejected in this test is the largest practical value. The MOV's and inverters may be the equipment most sensitive to voltage surges. The licensee's analysis indicates that no loss (tripped breaker or blown fuse) should occur; the test will be confirmatory in that sense. We believe that testing of this type is a technical improvement needed to accommodate operating experience and the licensee agrees with the desirability of such testing with regard to overall plant safety.

The licensee's request to delete the requirement for a full-load rejection test is acceptable. Such a confirmatory test has been completed during the plant pre-operational tests. The confidence gained from testing of loss of the single largest load every 18 months and testing of loss of half the rated load every five years is sufficient to provide reasonable assurance on a continuing basis that the diesel generator will not be lost due to a load rejection situation. The necessity of full-load rejection test no longer remains. Further, the performance of the hot restart test confirms that, should a diesel trip on monentary overspeed, it could be reset and restarted promptly.

Surveillance While in Action Statements

The present TS provide that, if one of the redundant offsite power circuits is inoperable or if one of the redundant onsite diesel generators is inoperable, the licensee goes into an Action Statement, which requires, in part, that special surveillance actions be taken when in this degraded mode. This Action Statement requires that every diesel generator be test started immediately (i.e., within one hour) and every eight hours thereafter.

The licensee had proposed that no special test starts of the diesels be conducted if they each had been successfully tested within seven days. The basis was the manufacturer's statement that more frequent testing, on a routine basis, would be excessive and could cause adverse effects on long-term reliability considerations.

In our discussions with the licensee and the diesel manufacturer, we conveyed two plant safety considerations that indicate a need for special test starts. When one source of electrical power is no longer available, one needs strong assurance that at least one diesel generator (per Unit) will provide emergency power is it is needed. If the lost source is a diesel generator, one would like to be assured that other diesels are not going to be lost for the same reason, i.e., rule out common failure modes. Secondly, the largest contributor to diesel unreliability is starting problems. If the diesel can start and settle out, it will most likely do everything else it is required to do, such as accept loads. The licensee agreed that these conditions are not routine surveillance and long-term reliability considerations are not the primary concern. The diesel manufacturer and the licensee agreed to conduct special test starts. The licensee contended however, that such tests need not be performed on an emergency basis, i.e., all diesels within one hour. We concurred. It was then agreed that two diesels would be tested promptly (i.e., within 12 hours). The two would be selected so as to demonstrate that at least one redundant electrical division in each Unit could be energized by the remaining diesels. The 12 hours would also allow for additional time for inspection of the diesels prior to test starting them.

In the case of one of the offsite power sources being inoperable we agreed with the diesel manufacturer that, since a diesel failure is not involved and hence the two concerns discussed above are not applicable, excessive testing is a consideration. If the diesels have been successfully tested within the past seven days, there would be little additional assurance gained through immediate special test starts, we agreed that when an offsite circuit is lost it is not necessary to conduct special starts to maintain reasonable assurance that the diesel generators at this station will provide their safety function.

With regard to periodic testing throughout the duration of the Action Statement, once the two concerns discussed above have been resolved initially, there is little additional reliability assurance to be gained from increasing the testing frequency beyond that for routine surveillance. As discussed above, the diesels are tested every seven or 14 days. In consideration of the adverse effects that could arise from testing more often than every seven days, we do not believe that the testing frequency should be increased.

Extensions of Limiting Conditions of Operation

With one diesel generator inoperable, the NRC's Standard TSs require that the diesel generator be returned to operable status within three days or the plant must be shut down.

Each of the four safety trains at the two unit Farley plant are powered from separate diesel generators. The fifth diesel, which normally operates river water pumps, can be manually diverted to run a safety train. The licensee has shown that for all combinations of losing one diesel generator coincident with loss of offsite power and/or a LOCA at either unit, at least one of the safety related trains will be automatically powered at each unit. In addition, manual transfer can restore power to trains that may not be actuated automatically. Thus, loss of a single diesel generator at Farley is not as critical as at a station with only two diesel generators.

The three-day action statement has been found by the licensee to be too short a time to allow for proper trouble-shooting, repairs and preoperational testing of the diesel generators. In each of the previous emergency TS changes granted by the NRC, the licensee stated that insufficient time was available to properly service the diesels. Therefore, the licensee has proposed that the three-day LCO be extended 18 days. The licensee's experience indicates that 18 days is necessary for major repairs of a diesel generator.

Similar to the case when a diesel generator becomes inoperable, the present TSs require that a plant be shutdown within three days if one of the two offsite power sources cannot be returned to operability. Using the same reasoning regarding flexibility of diesel generators and time needed to repair or replace transformers, the licensee has proposed extending the LCO from three to seven days.

The staff has evaluated the increase in risk of continued plant operation at Farley with one of the sources of a.c. power no longer available. The evaluation concluded that the increase in risk from allowing operations to be extended from three to 13 days while one diesel generator is inoperable is acceptably small. The risks associated with 18 days of operation are comparable and hence also acceptable. Similarly, if one of the redundant offsite sources is no longer available, the increase in risk from allowing plant operations to be extended from three to seven days is acceptably small at this station. Therefore, on a probablistic risk assessment basis, we find the licensee's proposed limits on the duration of the Action Statements to be acceptable.

Conclusion

Previous surveillance testing and subsequent repair of the Farley diesel generators revealed that the TSs found in Section 3/4.8.1.1 were excessively restrictive. Whenever a diesel generator failed a routine surveillance test and required extensive repairs, the licensee would be forced to return the diesel to operable status or shut the plant down within three days. When one of the three swing diesels was affected, both units would fall into the same Action Statement and would require shut down of both plants. Because of these problems, several emergency Technical Specification change requests have been initiated by Alabama Power Company and approved by the NRC. These emergency changes were on a one-time basis for a limited duration of time, primarily for an extension of the three-day LCO for periods up to 17 days.

As discussed earlier, the NRC's Standard TSs, as approved for Farley Unit 2, are based upon a single unit facility with two diesel generators. The TSs, which require increasing the frequency of periodic surveillance testing when failures start to occur, also require multiple verification testing of all operable diesel generators when one diesel becomes inoperable. The flexibility of having the five diesel generators at the Farley plant needs to be considered in their TSs requirements. Another consideration is the assertion made by both the licensee and the diesel manufacturer that frequent testing is detrimental to the diesel generators and can adversely affect the long term reliability.

Our experience with Alabama Power Company has shown that they are extremely concerned with both the operability and reliability of the diesel generators. Reference 4 details the extensive trouble-shooting, repairs and testing performed by the licensee over the past several months when repeated failures occurred with one of their diesel generators. Reference 5 reports on a special licensee Diesel Generator Task Force. This task force, formed in response to the repeated diesel generator failures, addressed all action items in NUREG CR-0660 (Enhancement of On-Site Emergency Diesel Generator Reliability) and recommended 25 design changes and nine operational changes.

The proposed revisions to the Farley TSs, which have the full endorsement of the diesel generator manufacturer, reduce unnecessary testing and allow ample time for the licensee to investigate diesel generator failures before being forced to shut the plant down. Based on our review we believe that the uniqueness of the Farley five-diesel generator design justifies the proposed TSs changes. Therefore we conclude that the proposed TSs changes are acceptable.

References

1. Letter from Alabama Power Company to USNRC (F. L. Clayton to Director, NRR) dated October 28, 1981.

2. Letter from Alabama Power Company to USNRC (F. L. Clayton to Director, NRR) dated November 6, 1981.

3. Letter from Alabama Power Company to USNRC (F. L. Clayton to Director, NRR) dated December 18, 1981.

4. Letter from Alabama Power Company to USNRC (F. L. Clayton to Director, NRR) dated October 23, 1981.

5. Letter from Alabama Power Company to USNRC (F. L. Clayton to Director, NRR) dated October 14, 1981.

Environmental Consideration

On the basis of the foregoing analysis, it is concluded that there will be no significant environmental impact attributable to the proposed action. Having made this conclusion, the Commission has further concluded that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate.

Safety Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Principal Contributors:

R. Ballard
J. Beard
C. Billips
O. Chopra
R. Frahm
G. Harrison
G. Holahan
G. LaRoche
J. Lehr
W. Milstead
C. Patel
D. Pickett
E. Reeves
H. Shaw
M. Virgilio
D. Vito
P. Wagner
J. Wetmore

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

ENVIRONMENTAL IMPACT APPRAISAL

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 26 TO

FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT UNIT 1

1. BACKGROUND AND DESCRIPTION OF PROPOSED ACTION

On May 19, 1980, Alabama Power Company (the licensee) submitted an amendment request for changes to the Joseph M. Farley Nuclear Plant Unit 1 Environmental Technical Specifications (ETS). The requested action was either to delete the nonradiological portion of the ETS or to replace the existing nonradiological ETS with a new set proposed by the licensee. The licensee noted that changes to Appendix A, which would transfer the radiological ETS from Appendix B to Appendix A, had been proposed earlier. Therefore, the requested action would affect only the nonradiological ETS remaining in Appendix B after removal of the radiological portions. The licensee also proposed that the new set of ETS be applied to Farley Unit 2 in the event that the NRC chose not to delete them, in total.

The staff considered the licensee's proposal in the Farley Unit 2 license review and rejected the alternative of deleting the nonradiological ETS, in total. The licensee's proposed basis for deleting the nonradiological ETS was that the U.S. Environmental Protection Agency (EPS) controls this subject area. Staff found this to be an inadequate basis because the EPA-issued National Pollutant Discharge Elimination System (NPDES) permit covers only those environmental matters related to protection of water quality and aquatic biota and not those related to endangered species or terrestrial effects. Furthermore, the NRC's responsibilities under NEPA are of a continuing nature and include cognizance of aquatic and terrestrial impacts at its licensed facilities.

Having rejected the proposal to delete the nonradiological ETS, the staff then considered the new set of ETS in developing an Environmental Protection Plan (EPP) for Farley Unit 2. The EPP forms Appendix B to the Farley Unit 2 operating license (No. NPF-8 issued on October 23, 1980) and addresses those matters covered by nonradiological ETS in previously issued operating licenses including the Farley Unit 1 license.

In the Farley Unit 2 EPP, certain conditions and monitoring requirements were deleted which are presently contained in the Farley Unit 1 ETS. Conditions and monitoring requirements for the protection of water quality and aquatic biota were deleted as a matter of law. These water quality-related issues are addressed by the NPDES permit issued by EPA-Region IV and now implemented by the State of Alabama. Some of the terrestrial monitoring programs were deleted based on review of study results provided by the licensee. Two additional terrestrial monitoring requirements were deleted because the matters were to be resolved through ongoing studies required by the Unit 1 ETS; these two requirements address the fogging potential from cooling tower operation and the erosion/visual impact potential along transmission line rights-of-way.

Using the Farley Unit 2 EPP as a model, the staff has developed an EPP for Farley Unit 1. The licensee was advised of the staff's intent to take this approach in responding to the May 19, 1980 amendment request and, by letter dated August 7, 1980, expressed general acceptance of the staff's approach. In the latter submittal, additional information and references to study results were provided for the staff's further consideration as bases for deleting the two requirements noted previously (i.e., observations of fogging potential and mitigation of erosion and screening problems on rights-of-way).

As modified by the staff's review for Farley Unit 2 and the licensee's August 7, 1980 submittal, the proposed action is to amend the Farley Unit 1 OL by replacing the existing nonradiological ETS with the newly developed EPP. This Environmental Impact Appraisal addresses the impacts of deleting limiting conditions and environmental studies currently required by the Farley Unit 1 ETS.

2. EVALUATION OF IMPACTS OF THE PROPOSED ACTION

a. Deletion of limiting condition for operation (LCO) on thermal discharge (ETS Section 2.1)

This LCO is being deleted as a matter of law. The FES-OL evaluation for Farley Units 1 and 2 was based on "cold side" blowdown in accordance with the requirements of 40 CFR 423. The NPDES permit limits the thermal discharge to "cold side" blowdown and imposes monitoring requirements to demonstrate compliance. The purpose of the LCO was to meet the monitoring requirements as specified in the NPDES permit. (FES-OL Section 5.3.2) Since the LCO is redundant to the NPDES permit requirement, there is no environmental impact associated with deletion of the LCO.

The new EPP (in Section 3.2) requires the licensee to report to the NRC any violation of the NPDES permit and/or state certification. The report requirement will allow the NRC to follow the consequences of this licensing action with regard to the thermal discharge.

b. Deletion of LCO on residual chlorine discharge (ETS Section 2.2.1)

This LCO is being deleted as a matter of law. The FES-OL evaluation for Farley Units 1 and 2 is based on the discharge of both free- and combined-available chlorine (i.e., total residual chlorine) up to a maximum of 0.2 mg/L in the plant discharge during periods of intermittent chlorination. Subsequent reduction of virtually all free available chlorine in the discharge water is expected through the action of the chlorine demand of the Chattahoochee River. The concentration of total residual chlorine in the plant discharge was to be continuously monitored by the amperometric titration method, with periodic grab sample analyses performed during chlorination for the free available chlorine fraction concentration according to the licensee's commitment. (FES-OL Sections 3.2.4, 5.4.2, 6.3 and App. A, pp. 7-10)

The initial NPDES permit limitations were established consistent with the USEPA minimum standards of performance for steam electric power plants under 40 CFR 423. The NPDES permit initially limits the discharge concentration of only free-available chlorine to 0.2 mg/l as an average value, and 0.5 mg/l as an instantaneous maximum value, limits the daily duration of discharge of free-available and combined-available chlorine to a maximum of 2 hours, and prohibits simultaneous discharge of residual chlorine from both units at the site. The permit requires monitoring to demonstrate compliance with these effluent limitations and restrictions. A study is also required by the permit to evaluate methods to reduce total residual chlorine levels in the plant cooling tower blowdown. Final chlorine discharge limitations may be imposed based on results of this study.

The initial limitations on the discharge of residual chlorine and the required monitoring for compliance contained in the NPDES permit are not consistent with the FES evaluation. These limitations would permit a mode of plant operation and subsequent discharge from the chlorination system different from that mode of system operation originally proposed by the licensee and used as a basis for evaluation in the FES. The LCO

requirements were established to be consistent with the initial NPDES permit requirements with respect to the allowable free-available chlorine concentration in the plant discharge and the required monitoring for compliance determination. Since the LCO is redundant to the NPDES permit requirement, there is no environmental impact associated with deletion of the LCO. The new EPP (in Section 3.2) requires the licensee to report to the NRC any violation of the NPDES permit and/or state certification and, also, to provide the NRC a copy of the results of the chlorine minimization study. These requirements will allow the NRC to follow the consequences of this licensing action with regard to the chlorine discharge.

c. Deletion of LCO on pH of certain discharge streams (ETS Section 2.2.2)

This LCO is being deleted as a matter of law. The NPDES permit for Farley Units 1 and 2 requires that the pH of certain discharges be maintained within the range of 6.0 to 9.0 and that monitoring be performed to demonstrate compliance. The LCO requirements were imposed by the Unit 1 ETS to be consistent with the NPDES permit requirements. The FES-OL evaluation did not specifically address pH of plant discharges. Since the LCO is redundant to the NPDES permit requirement, there is no environmental impact associated with deletion of the LCO. Any violations of the pH limits will be reported to the NRC via the new EPP Section 3.2.

d. Deletion of elements of the nonradiological environmental surveillance program (ETS Section 3)

The environmental surveillance program required by ETS Section 3 was designed to meet the intent of programs outlined in the FES-OL for Farley Units 1 and 2. The program consists of five major elements, four of which address nonradiological issues. These are (1) monitoring of aquatic biota in the Chattahoochee River (2) monitoring of water quality (chemicals and temperatures) in the River, (3) monitoring of soil chemistry and meteorological parameters, and (4) inspection of transmission line rights-of-way. Specific studies are detailed in subsection 3.1 of the present Unit 1 ETS. Those studies which address program elements (1) and (2), noted above, are being deleted as a matter of law since matters related to water quality and aquatic biota are regulated by EPA and/or the State of Alabama pursuant to the Clean Water Act. Certain terrestrial monitoring studies are being deleted on the basis of the staff's evaluation of new information. Other terrestrial monitoring requirements are being retained in the newly developed EPP. Disposition of each of the existing nonradiological requirements of ETS Section 3.1 is described below:

Chemical discharges [ETS Section 3.1.1 (a)-1] - This monitoring requirement is being deleted as a matter of law since chemical discharges are regulated by the NPDES permit.

The NPDES permit regulates chemical discharges via effluent limitations and monitoring requirements on individual discharge outfalls prior to mixing with other waste streams. Discharge of all combined plant waste streams to the Chattahoochee River via the plant's 60-inch discharge

conduit is permitted with no limitation or monitoring requirements other than those placed on the individual waste streams (NPDES permit, Part III.G). In contrast, the existing Unit 1 ETS requires the collection and analysis of water samples from the Chattahoochee River to provide data for assessments if any impacts on aquatic biota are observed.

In the FES-OL, the staff concluded that no hazard was expected from the low concentrations of chemicals that would be released to the Chattahoochee River (FES-OL Summary and Conclusions, p. ii). Therefore, there is no impact associated with deletion of this ETS requirement provided the chemical discharges are as previously evaluated in the FES-OL and regulated by the NPDES permit.

The new EPP will maintain NRC awareness of violations or changes in the discharge limitations. Also, the licensee is required by EPP Section 3.1 to obtain prior NRC approval before engaging in an activity which involves an unreviewed environmental question (e.g., increases in types or amounts of chemical effluents). Also, proposed changes to the NPDES permit would be reportable to the NRC by EPP Section 3.2. Unusual or important environmental events which indicate or could result in significant environmental impact are to be promptly reported (EPP Section 4.1) and followed up by a detailed evaluation (EPP Section 5.4.2).

Thermal measurements [ETS Section 3.1.1(a)-2] - This monitoring requirement is being deleted as a matter of law since thermal discharges are regulated by the NPDES permit.

The NPDES permit limits the thermal discharge to "cold side" blowdown from the closed-cycle cooling system and imposes requirements to demonstrate compliance by monitoring the discharge from each cooling tower system prior to mixing with other waste streams. No thermal measurements in the Chattahoochee River are required by the NPDES permit. In contrast, the existing Unit 1 ETS requires the placement of thermographs at four locations in the River to provide data to be used in the assessment of any observed impact on aquatic biota.

In the FES-OL, the staff concluded that the heat load would not violate the thermal discharge criteria of the States of Alabama and Georgia (FES-OL Summary and Conclusions, p. ii) and that the impact of the discharge is acceptable (FES-OL, p. 5-4). Therefore, there is no impact associated with the deletion of this ETS requirement assuming the thermal discharge is as previously evaluated in the FES-OL and regulated by the NPDES permit. As noted in the previous discussion of chemical discharges, the new EPP will keep the NRC aware of changes and violations, if any, of the thermal limits and of unusual events which might be attributable to plant operation, such as thermal shock kills of aquatic biota.

Soil chemistry and infra-red photography [ETS Section 3.1.1(b)-1] - According to the licensee's report on soil chemistry, the soils in the test area had a mean soil conductivity difference of 3.43 mmhos per cm lower in the operational sample compared with the preoperational sample. Even though this difference is statistically significant, it is so small

that it is not biologically significant. Further, because the test showed a reduction rather than an increase in soluble salts in comparing operational with preoperational data, the cooling tower drift is not having an adverse effect on the soil of the area around Farley Units 1 and 2. Based on these staff findings, the requirements for measuring soil conductivity have been deleted.

Requirements for aerial remote sensing for detection of vegetative damage, or lack thereof, from cooling tower drift dispersions has been continued in the new EPP Section 4.2.1.

Monitoring of fog conditions [ETS Section 3.1.1(b)-2] -

The Construction Permits for Farley 1 and 2 were conditioned to include a determination of the potential for fogging due to operation of the mechanical draft cooling towers. The program was to include collection of at least one year of baseline data on natural fogging and predictions of the extent of cooling tower plumes and of the potential for incremental fogging attributable to plant operation. Alabama Power Company completed the requirements of the Construction Permit condition as documented in a report submitted to the NRC on March 21, 1977. Utilizing the site data, model results indicated that no significant fogging would occur. Also, the model predicted that there would be no unnatural ground fog offsite attributable to the plant.

The licensee committed to continuing the program into the operational mode so as to identify operational effects if any, which could create a hazard to traffic. Observations of weather conditions and visibility were made during the first year of Unit 1 operation. Results are provided in the licensee's "Summary Report on Monitoring of Fog Conditions, December 1977 through December 1978," submitted to the NRC on March 1, 1979. Results indicate that fogging occurred most frequently in January and primarily at sunrise. The incidence of fogging averaged between two and three times per month over the year. No effects due to plant operation were noted.

Based on results of the licensee's study program, the CP condition and the Unit 1 ETS requirements have been satisfied with regard to fogging potential.

Inspection of transmission line rights-of-way [ETS Section 3.1.1(b)-4] - On October 20, 1980, the NRC resident inspector performed an aerial survey of the Alabama Power Company's Farley-Pickard, Farley-Webb-Pickard and the Farley-Snowdown high voltage transmission rights-of-way and the supporting transmission tower structures. The inspector observed the transmission lines rights-of-ways and tower structures for soil erosion control, vegetation control, and rights-of-way encroachment. Within the areas inspected, the inspector observed no environmental deficiencies. Accordingly, this ETS requirement has been deleted.

Herbicide application on transmission line rights-of-way [ETS 3.1.1(b)-5] - Requirements for the controlled use of herbicides are being continued in the new EPP (Section 4.2.2).

General ecological and entrainment survey [ETS Section 3.1.2(a)-1] and Impingement of Organisms [ETS Section 3.1.2(a)-2] -

These ETS requirements are being deleted as a matter of law since imposition of monitoring requirements on aquatic biota to demonstrate compliance of intakes and discharges is solely the responsibility of EPA (or permitting States) pursuant to the Clean Water Act.

In the FES-OL, the staff concluded that some losses from entrainment and impingement would occur but would not result in detectable impacts to the community of aquatic organisms (FES-OL: Summary and Conclusions, p.ii; Section 5.4.3 and Section 11.2). Potential impacts on aquatic biota due to thermal and chemical discharges were also judged acceptable by the staff. Although no aquatic impacts were anticipated from plant operation as evaluated in the FES-OL, the staff recommended that a general ecological survey and entrainment and impingement studies be conducted to confirm the FES-OL assessments. The survey was to include collection and comparison of biological data for preoperational and operational periods.

The NPDES permit imposes a requirement for demonstrating compliance of the intake with Section 316(b) of the Clean Water Act. The demonstration study calls for the monitoring of nekton and shellfish impinged on plant intake structures and fish eggs and larvae and other organisms entrained by the cooling water system (NPDES permit, Part III.E).

The entrainment and impingement studies required by the present ETS are redundant to the NPDES permit requirement; thus there will be no loss of information by deletion of the ETS requirement. The licensee is required by the new EPP (Section 3.2) to submit an information copy of results of the Section 316(b) study to the NRC.

The general ecological survey required by the present ETS calls for monitoring aquatic biota at several locations in the Chattahoochee River including the intake area. In contrast, the NPDES permit requires monitoring of aquatic biota only in the intake area for the noted purpose of demonstrating compliance with Section 316(b). Thus, deletion of the ETS requirement will result in a reduction of information which would have been obtained on the spatial variability of aquatic biota in the river. The licensee has completed a portion of the ETS-required survey including almost three years of preoperational data collection and one year of operational data collection for Unit 1. The results submitted to the NRC on March 1, 1979 failed to indicate any significant changes in the biological community which could be associated with one-unit plant operation. The four years of data provide a baseline upon which comparisons may be made with the two-unit entrainment and impingement data to be collected by the licensee for the Section 316(b) demonstration.

If significant impingement and entrainment are found to be occurring, the NPDES permit (in Part III.E) requires that the licensee's Section 316(b) report include (1) an evaluation of modifications to minimize impact of the intake, (2) an evaluation of methods to return viable nekton and shellfish, and (3) a proposal and schedule for implementing facility or procedural modifications. The new EPP in Section 3.3 addresses changes

which are required to achieve compliance with other environmental regulations.

Terrestrial land management program [ETS Section 3.1.2(b)] - The requirement for institution of a land management program to provide for revegetation of onsite construction-impacted areas is being continued in the new EPP (Section 4.2.3).

e. Deletion of special surveillance or study activities [ETS Section 4]

The two special studies contained in ETS Section 4 are being deleted as a matter of law since approval of the thermal discharge and cooling system intake is the responsibility of EPA (or a permitting State) pursuant to Sections 316(a) and 316(b) of the Clean Water Act.

ETS 4.1 required measurements of intake velocity under various operating levels to verify predictions in the Environmental Report-Operating License Stage. The licensee measured intake velocity during pump testing for Farley Unit 1. Results were submitted in the first "Annual Non-Radiological Environmental Operating Report," submitted to the NRC on March 30, 1978. The second phase of the study was to be conducted during preoperational testing of Unit 2 pumps and reported in the annual operating report following completion of the study.

The NPDES permit requires a Section 316(b) demonstration study which will include measurement of intake velocity during the first year of two-unit operation. Therefore, the existing ETS 4.1 requirement is redundant to the NPDES permit requirement regarding intake velocity measurements. The licensee is required by the new EPP (in Section 3.2) to submit an informational copy of the 316(b) study report to the NRC at the same time it is submitted to the NPDES permitting agency.

ETS 4.2 required a thermal plume mapping study to confirm predictions made in the licensee's Environmental Report-Operating License Stage and in the Staff's FES-OL. The study was to be conducted with both units operational and reported in the first Annual Environmental Operating Report following completion of the study.

As noted previously in this EIA, the NPDES permit limits the thermal discharge to "coldside" blowdown from the closed-cycle cooling system. No thermal measurements in the Chattahoochee River are required by the NPDES permit since the discharge satisfies EPA's proposed guidelines and standards (FES-OL, p. A-34). Deletion of ETS 4.2 will result in a loss of information concerning the thermal plume, but there is no environmental impact associated with the deletion assuming that the thermal discharge is as evaluated in the FES-OL and now regulated by the NPDES permit. The new EPP will keep the NRC aware of changes and violations, if any, of the thermal discharge limitations.

3. CONCLUSION AND BASIS FOR NEGATIVE DECLARATION

Based on the foregoing evaluation, it is concluded that there will be no significant environmental impact attributable to the proposed action other than has already been assessed in the FES-OL for Farley Units 1 and 2. Having reached this conclusion, it has further been found that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate.