

October 1, 1997

Mr. D. N. Morey  
Vice President - Farley Project  
Southern Nuclear Operating  
Company, Inc.  
Post Office Box 1295  
Birmingham, Alabama 35201-1295

SUBJECT: ISSUANCE OF AMENDMENTS- JOSEPH M. FARLEY NUCLEAR PLANT,  
UNITS 1 AND 2 (TAC NO. M99610 AND M99612)

Dear Mr. Morey:

The Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 132 to Facility Operating License No. NPF-2 and Amendment No. 124 to Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2. The amendments change the Technical Specifications (TS) in response to your submittal dated September 17, 1997.

The amendment changes TS 3/4.4.9, "Specific Activity," and the associated Bases to reduce the limit associated with dose equivalent iodine-131. The steady-state dose equivalent iodine-131 limit would be reduced by 50 percent from 0.3 µCurie/gram to 0.15 µCurie/gram and the maximum instantaneous value would be reduced by 50 percent from 18 µCurie/gram to 9 µCurie/gram.

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

Sincerely,

ORIGINAL SIGNED BY:

Jacob I. Zimmerman, Project Manager  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosures:

- 1. Amendment No. 132 to NPF-2
- 2. Amendment No. 124 to NPF-8
- 3. Safety Evaluation

WFO FULL ORIGINAL COPY

cc w/encls: See next page



DISTRIBUTION:

<del>Docket File</del>	PUBLIC	W.Beckner, TSB	J.Johnson,RII
PDII-2 RF	S.Varga	OGC	P.Skinner,RII
G.Hill (4)	ACRS	JHayes, PERB	SCoffin, EMCB

DFOI

e-mail TLH3 SE only

DOCUMENT NAME: G:\FARLEYM99610.AMD \*See previous concurrence

OFFICE	DRPE:PD2-2/PM	DRPE:PDII-2/LA*	OGC	DRPE/PD22/D
NAME	J.ZIMMERMAN:cn	L.BERRY ETD	S. Hillman w/changes	H.BERKOW PST
DATE	10/10/97	10/9/97 10/10/97	10/17/97	10/28/97 for
COPY	(YES) NO	(YES) NO	YES NO	YES NO

OFFICIAL RECORD COPY

9711130293 971029  
PDR ADOCK 05000348  
PDR



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

October 29, 1997

Mr. D. N. Morey  
Vice President - Farley Project  
Southern Nuclear Operating  
Company, Inc.  
Post Office Box 1295  
Birmingham, Alabama 35201-1295

SUBJECT: ISSUANCE OF AMENDMENTS- JOSEPH M. FARLEY NUCLEAR PLANT,  
UNITS 1 AND 2 (TAC NO. M99610 AND M99612)

Dear Mr. Morey:

The Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 132 to Facility Operating License No. NPF-2 and Amendment No. 124 to Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2. The amendments change the Technical Specifications (TS) in response to your submittal dated September 17, 1997.

The amendment changes TS 3/4.4.9, "Specific Activity," and the associated Bases to reduce the limit associated with dose equivalent iodine-131. The steady-state dose equivalent iodine-131 limit would be reduced by 50 percent from 0.3  $\mu$ Curie/gram to 0.15  $\mu$ Curie/gram and the maximum instantaneous value would be reduced by 50 percent from 18  $\mu$ Curie/gram to 9  $\mu$ Curie/gram.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob I. Zimmerman".

Jacob I. Zimmerman, Project Manager  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosures:

1. Amendment No. 132 to NPF-2
2. Amendment No. 124 to NPF-8
3. Safety Evaluation

cc w/encls: See next page

Joseph M. Farley Nuclear Plant

cc:

Mr. R. D. Hill, Jr.  
General Manager -  
Southern Nuclear Operating Company  
Post Office Box 470  
Ashford, Alabama 36312

Mr. Mark Ajluni, Licensing Manager  
Southern Nuclear Operating Company  
Post Office Box 1295  
Birmingham, Alabama 35201-1295

Mr. M. Stanford Blanton  
Balch and Bingham Law Firm  
Post Office Box 306  
1710 Sixth Avenue North  
Birmingham, Alabama 35201

Mr. J. D. Woodard  
Executive Vice President  
Southern Nuclear Operating Company  
Post Office Box 1295  
Birmingham, Alabama 35201

State Health Officer  
Alabama Department of Public Health  
434 Monroe Street  
Montgomery, Alabama 36130-1701

Chairman  
Houston County Commission  
Post Office Box 6406  
Dothan, Alabama 36302

Regional Administrator, Region II  
U.S. Nuclear Regulatory Commission  
Atlanta Federal Center  
61 Forsyth Street, S.W., Suite 23T85  
Atlanta, Georgia 30303

Resident Inspector  
U.S. Nuclear Regulatory Commission  
7388 N. State Highway 95  
Columbia, Alabama 36319



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 132  
License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated September 17, 1997, 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, 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 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.
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:

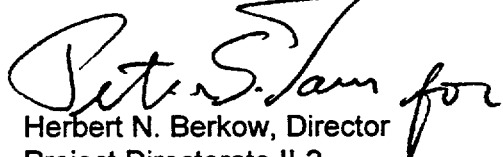
9711130301 971029  
PDR ADOCK 05000348  
P PDR

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 132, are hereby incorporated in the license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: October 29, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 132

TO FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove Pages

3/4 4-23  
3/4 4-24  
3/4 4-25  
3/4 4-26  
B 3/4 4-5

Insert Pages

3/4 4-23  
3/4 4-24  
3/4 4-25  
3/4 4-26  
B 3/4 4-5

REACTOR COOLANT SYSTEM

3/4.4.9 SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

---

3.4.9 The specific activity of the primary coolant shall be limited to:

- a. Less than or equal to 0.15 microCurie per gram DOSE EQUIVALENT I-131;
- b. Less than or equal to  $100/\bar{E}$  microCurie per gram.

APPLICABILITY: MODES 1, 2, 3, 4, and 5

ACTION:

MODES 1, 2, and 3\*:

- a. With the specific activity of the primary coolant greater than 0.15 microCurie per gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or exceeding the limit line shown on Figure 3.4-1, be in at least HOT STANDBY with  $T_{avg}$  less than 500°F within 6 hours.
- b. With the specific activity of the primary coolant greater than  $100/\bar{E}$  microCurie per gram, be in at least HOT STANDBY with  $T_{avg}$  less than 500°F within 6 hours.

\* With  $T_{avg}$  greater than or equal to 500°F.

FARLEY-UNIT 1

3/4 4-23

AMENDMENT NO. 26, 63, 106,  
117, 128, 132

REACTOR COOLANT SYSTEM

ACTION: (Continued)

---

---

MODES 1, 2, 3, 4, and 5:

- a. With the specific activity of the primary coolant greater than 0.15 microCurie per gram DOSE EQUIVALENT I-131 or greater than  $100/\bar{E}$  microCuries per gram, perform the sampling and analysis requirements of item 4a of Table 4.4-4 until the specific activity of the primary coolant is restored to within its limits.

SURVEILLANCE REQUIREMENTS

---

---

4.4.9 The specific activity of the primary coolant shall be determined to be within the limits by performance of the sampling and analysis program of Table 4.4-4.



TABLE 4.4-4

PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE  
AND ANALYSIS PROGRAM

<u>TYPE OF MEASUREMENT AND ANALYSIS</u>	<u>SAMPLE AND ANALYSIS FREQUENCY</u>	<u>MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED</u>
1. Gross Activity Determination	At least once per 72 hours	1, 2, 3, 4
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	1 per 14 days	1
3. Radiochemical for $\bar{E}$ Determination	1 per 6 months*	1
4. Isotopic Analysis for Iodine Including I-131, I-133, and I-135	a) Once per 4 hours, whenever the specific activity exceeds 0.15 $\mu\text{Ci}/\text{gram}$ DOSE EQUIVALENT I-131 or $100/\bar{E}$ $\mu\text{Ci}/\text{gram}$ , and	1#, 2#, 3#, 4#, 5#
	b) One sample between 2 and 6 hours following a THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a one hour period.	1, 2, 3

# Until the specific activity of the primary coolant system is restored within its limits.

\* Sample to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since reactor was last subcritical for 48 hours or longer.

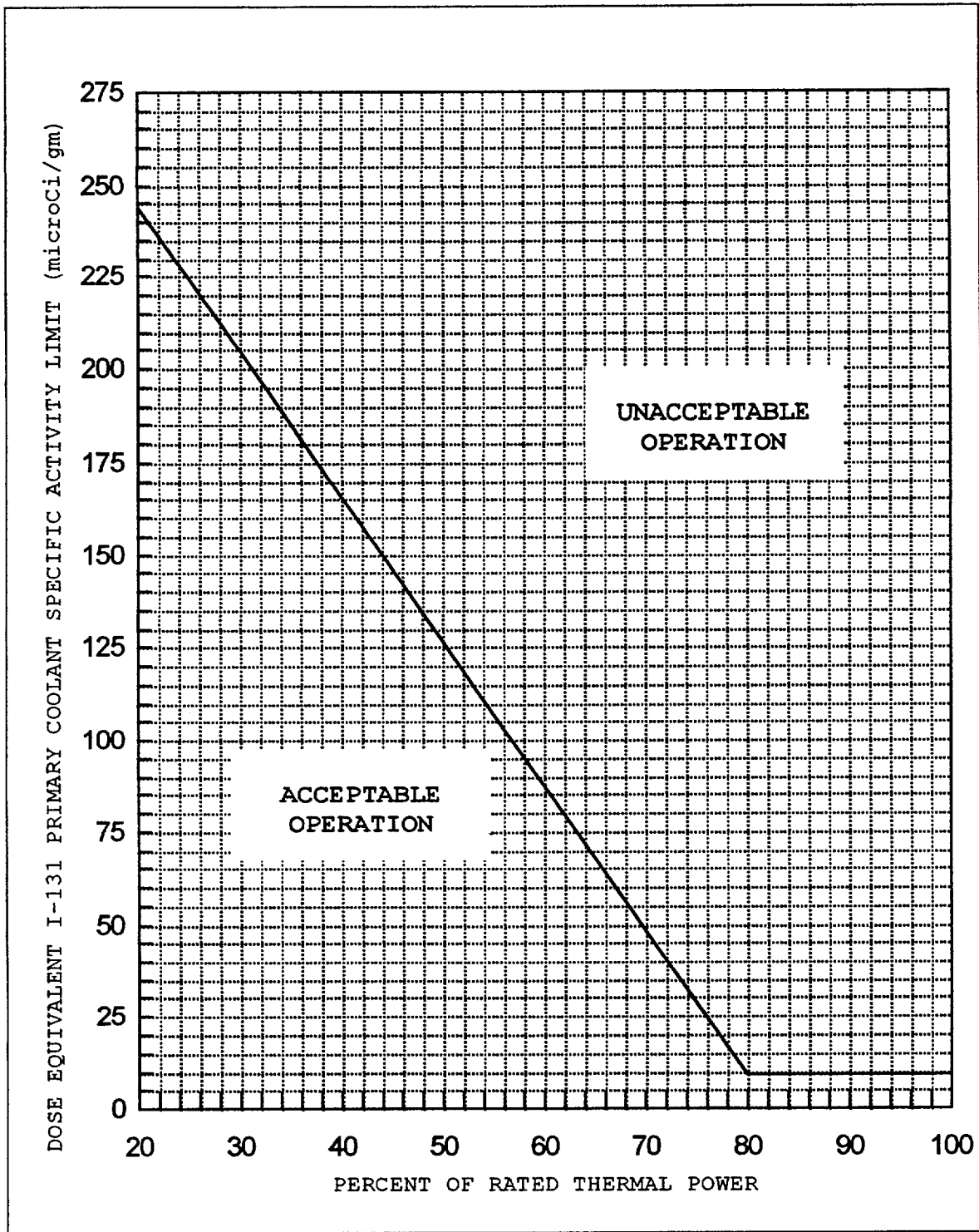


FIGURE 3.4-1

DOSE EQUIVALENT I-131 Primary Coolant Specific Activity Limit Versus Percent of RATED THERMAL POWER with the Primary Coolant Specific Activity > 0.15  $\mu\text{Ci}/\text{gram}$  Dose Equivalent I-131

## REACTOR COOLANT SYSTEM

### BASES

---

---

#### 3/4.4.8 CHEMISTRY

The limitations on Reactor Coolant System chemistry ensure that corrosion of the Reactor Coolant System is minimized and reduces the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the chemistry within the Steady State Limits provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride, and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady State Limits.

The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

#### 3/4.4.9 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2 hour doses at the site boundary will not exceed an appropriately small fraction of Part 100 limits in the event of primary-to-secondary leakage as a result of a steamline break.

The ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity greater than 0.15 microCuries/gram DOSE EQUIVALENT I-131, but within the allowable limit shown on Figure 3.4-1, accommodates possible iodine spiking phenomenon which may occur following changes in THERMAL POWER.



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 124  
License No. NPF-8

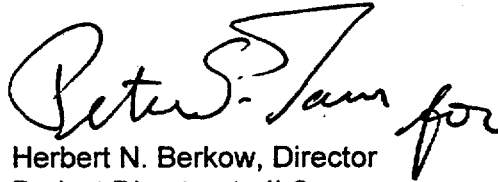
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated September 17, 1997, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, 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 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.
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-8 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 124, are hereby incorporated in the license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: October 29, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 124

TO FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove

3/4 4-23  
3/4 4-24  
3/4 4-25  
3/4 4-26  
B 3/4 4-5

Insert

3/4 4-23  
3/4 4-24  
3/4 4-25  
3/4 4-26  
B 3/4 4-5

REACTOR COOLANT SYSTEM

3/4.4.9 SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

---

---

3.4.9 The specific activity of the primary coolant shall be limited to:

- a. Less than or equal to 0.15 microCurie per gram DOSE EQUIVALENT I-131;
- b. Less than or equal to  $100/\bar{E}$  microCurie per gram.

APPLICABILITY: MODES 1, 2, 3, 4 and 5

ACTION:

MODES 1, 2 and 3\*:

- a. With the specific activity of the primary coolant greater than 0.15 microCurie per gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or exceeding the limit shown on Figure 3.4-1, be in at least HOT STANDBY with  $T_{avg}$  less than 500°F within 6 hours.
- b. With the specific activity of the primary coolant greater than  $100/\bar{E}$  microCurie per gram, be in at least HOT STANDBY with  $T_{avg}$  less than 500°F within 6 hours.

---

\* With  $T_{avg}$  greater than or equal to 500°F.

REACTOR COOLANT SYSTEM

ACTION: (Continued)

---

---

MODES 1, 2, 3, 4 and 5:

- a. With the specific activity of the primary coolant greater than 0.15 microCurie per gram DOSE EQUIVALENT I-131 or greater than  $100/\bar{E}$  microCuries per gram, perform the sampling and analysis requirements of item 4a of Table 4.4-4 until the specific activity of the primary coolant is restored to within its limits.

SURVEILLANCE REQUIREMENTS

---

---

4.4.9 The specific activity of the primary coolant shall be determined to be within the limits by performance of the sampling and analysis program of Table 4.4-4.



TABLE 4.4-4

PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE  
AND ANALYSIS PROGRAM

<u>TYPE OF MEASUREMENT AND ANALYSIS</u>	<u>SAMPLE AND ANALYSIS FREQUENCY</u>	<u>MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED</u>
1. Gross Activity Determination	At least once per 72 hours	1, 2, 3, 4
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	1 per 14 days	1
3. Radiochemical for $\bar{E}$ Determination	1 per 6 months*	1
4. Isotopic Analysis for Iodine Including I-131, I-133, and I-135	a) Once per 4 hours, whenever the specific activity exceeds 0.15 $\mu\text{Ci/gram DOSE EQUIVALENT}$ I-131 or $100/\bar{E}$ $\mu\text{Ci/gram}$ , and	1#, 2#, 3#, 4#, 5#
	b) One sample between 2 and 6 hours following a THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a one hour period.	1, 2, 3

# Until the specific activity of the primary coolant system is restored within its limits.

\* Sample to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since reactor was last subcritical for 48 hours or longer.

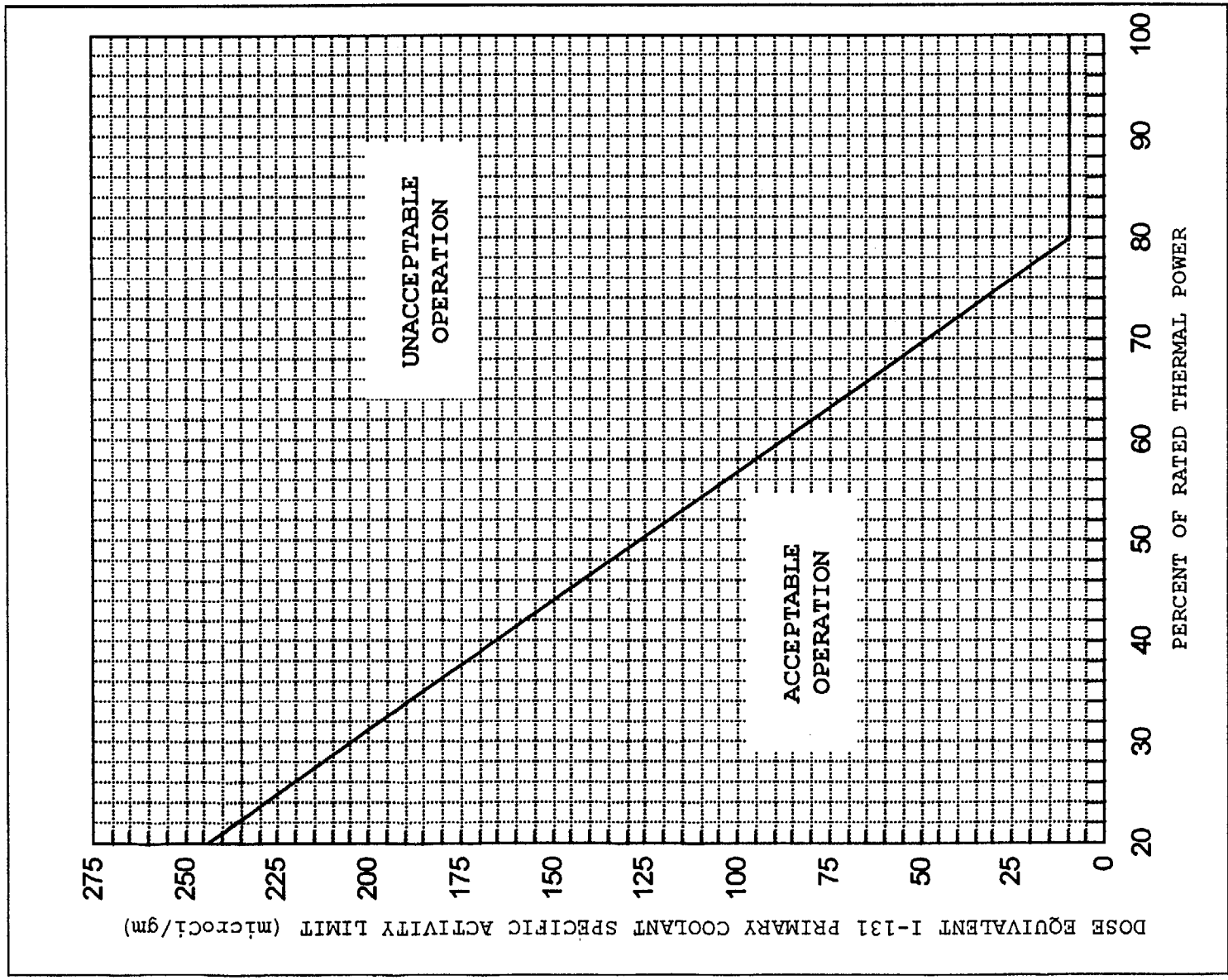


FIGURE 3.4-1

DOSE EQUIVALENT I-131 PRIMARY COOLANT SPECIFIC ACTIVITY LIMIT VERSUS  
 PERCENT OF RATED THERMAL POWER WITH THE PRIMARY COOLANT SPECIFIC  
 ACTIVITY > 0.15 μCi/gram DOSE EQUIVALENT I-131

## REACTOR COOLANT SYSTEM

### BASES

---

---

#### 3/4.4.8 CHEMISTRY

The limitations on Reactor Coolant System chemistry ensure that corrosion of the Reactor Coolant System is minimized and reduces the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the chemistry within the Steady State Limits provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with containment concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the containment concentrations to within the Steady State Limits.

The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

#### 3/4.4.9 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2 hour doses at the site boundary will not exceed an appropriately small fraction of Part 100 limits in the event of primary-to-secondary leakage as a result of a steam line break.

The ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity greater than 0.15 | microCuries/gram DOSE EQUIVALENT I-131, but within the allowable limit shown on Figure 3.4-1, accommodates possible iodine spiking phenomenon which may occur following changes in THERMAL POWER.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. NPF-2  
AND AMENDMENT NO. 124 TO FACILITY OPERATING LICENSE NO. NPF-8  
SOUTHERN NUCLEAR OPERATING COMPANY, INC., ET AL.  
JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-348 AND 50-364

1.0 INTRODUCTION

By letter dated September 17, 1997, the Southern Nuclear Operating Company, Inc. (Southern Nuclear), et al., submitted an amendment request to modify the Joseph M. Farley Nuclear Plant, Units 1 and 2, Technical Specifications (TSs). The requested changes would revise TS 3/4.4.9, "Specific Activity," to reduce both the maximum instantaneous and the 48-hour values of dose equivalent  $^{131}\text{I}$  (iodine-131) in the reactor coolant. Southern Nuclear proposed to reduce these values because of the determination of an increase in the allowable primary-to-secondary leakage associated with a main steamline break (MSLB) accident. This increase was from a previously approved value of 19 gallons per minute (gpm) (density corrected to 13.5 gpm) for Unit 1 and 11.4 gpm (not density corrected) for Unit 2 to a density corrected value of 23.8 gpm for both.

2.0 BACKGROUND

In Amendment No. 128 to the Unit 1 TSs, the 48-hour specific activity level of dose equivalent  $^{131}\text{I}$  was changed to 0.3 microcurie/gram ( $\mu\text{Ci/g}$ ) from the previously approved value of 0.5  $\mu\text{Ci/g}$ . In addition, Table 4.4-4 was changed to require sampling of  $^{131}\text{I}$ ,  $^{133}\text{I}$ , and  $^{135}\text{I}$  every 4 hours when the specific activity level of primary coolant exceeded 0.3  $\mu\text{Ci/g}$ . Figure 3.4-1 was changed to limit the maximum instantaneous activity level of dose equivalent  $^{131}\text{I}$  at rated thermal power levels of 80% or greater to 18  $\mu\text{Ci/g}$ .

In Amendment No. 106 to the Unit 2 TSs, the 48-hour specific activity level of dose equivalent  $^{131}\text{I}$  was changed to 0.5  $\mu\text{Ci/g}$  from the previously approved value of 1.0  $\mu\text{Ci/g}$ . In addition, Table 4.4-4 was changed to require sampling of  $^{131}\text{I}$ ,  $^{133}\text{I}$ , and  $^{135}\text{I}$  every 4 hours when the specific activity level of primary coolant exceeds 0.5  $\mu\text{Ci/g}$ . Figure 3.4-1 was changed to limit the maximum instantaneous activity level of dose equivalent  $^{131}\text{I}$  at rated thermal power levels of 80% or greater to 30  $\mu\text{Ci/g}$ . This was a decrease from the previous value of 60  $\mu\text{Ci/g}$ . The Bases section of the TS was also changed to reflect the new value of 0.5  $\mu\text{Ci/g}$ .

A letter dated July 30, 1997, from the Nuclear Energy Institute to the industry indicated that a licensee had determined that some site-allowable MSLB steam generator leak rates and the end of cycle (EOC) MSLB leak rates were incompatible because these values had not compensated for density differences. When this issue was reviewed for Farley Unit 1, it was determined that, for Amendment No. 128, the approved 19 gpm leak rate actually corresponded to a 13.5 gpm leak rate when compensated for density. The results of the spring 1997 inspection of the Unit 1 steam generators indicated that the maximum projected EOC leak rate for the current operating cycle would be 15.7 gpm, which exceeded the projected EOC leakage of 13.7 gpm approved in Amendment No. 128. The licensee projected the 13.7 gpm leak rate would be exceeded 310 effective full power days into the present operating cycle. As of September 12, 1997, Unit 1 was 100 days into the cycle.

During this same spring 1997 steam generator inspection, a 13.7-volt indication was discovered in the 1C steam generator at the first tube support plate. This was considered to be a significant finding with respect to the existing data base for alternate repair criteria at the tube support plate. In-situ testing of the tube revealed no leakage at the MSLB differential pressure. However, the tube was subsequently pulled, tested, and destructively examined. The MSLB leakage for this intersection was determined to be 0.72 gpm. When this data is added to the currently approved voltage versus burst correlation and the voltage versus MSLB leakage correlation, there is a significant impact on the projected calculated EOC leakage. The new EOC calculated leakage was determined to be 20.4 gpm and the present condition of the Unit 1 steam generators is such that the approved leakage in Amendment No. 128 is exceeded. Consequently, the licensee placed an administration limit on the 48-hour TS value of dose equivalent  $^{131}\text{I}$  of 0.15  $\mu\text{Ci/g}$ .

In a letter dated September 17, 1997, Southern Nuclear submitted an amendment request that proposed to modify TS 3/4.4.9, "Specific Activity," for both Units 1 and 2. In this letter, Southern Nuclear proposed to reduce the 48-hour TS value of dose equivalent  $^{131}\text{I}$  from 0.3  $\mu\text{Ci/g}$  to 0.15  $\mu\text{Ci/g}$  and the maximum instantaneous value in the 80%-100% power range from 18  $\mu\text{Ci/g}$  to 9  $\mu\text{Ci/g}$ . The maximum instantaneous values for power levels less than 80% would also be reduced in Figure 3/4-1. Associated with these reductions in allowable values of dose equivalent  $^{131}\text{I}$  in primary coolant was a proposed increase in the allowable primary-to-secondary leakage rate to 23.8 gpm.

#### Assessment of Radiological Consequences

The staff assessed the radiological dose consequences of an MSLB accident, which incorporates a density corrected 23.8 gpm primary-to-secondary leak. Two cases were evaluated. The first involved the accident initiated spike case, which is presumed to occur at the proposed 48-hour TS value of dose equivalent  $^{131}\text{I}$  in primary coolant, 0.15  $\mu\text{Ci/g}$ . The second case involved the preexisting spike case, which is presumed to occur at the maximum instantaneous value of dose equivalent  $^{131}\text{I}$  for 80% power or greater, 9  $\mu\text{Ci/g}$ . In both cases, the secondary coolant activity level of dose equivalent  $^{131}\text{I}$  was 0.1  $\mu\text{Ci/g}$ . The staff independently calculated the doses resulting from a main steamline break accident using the methodology associated with Standard Review Plan 15.1.5, Appendix A.

The staff calculated doses for individuals located offsite at the Exclusion Area Boundary and at the Low-Population Zone and onsite to the control room operator. The parameters, which were utilized in the staff's assessment, are presented in Table 1 (attached). The doses calculated by the staff are presented in Table 2 (attached).

The staff's calculations showed that the thyroid doses would be within the regulatory guidelines established for utilization of interim plugging criteria. Consequently, the staff concluded that the licensee's proposed increase in the MSLB induced leakage to a density compensated 23.8 gpm in conjunction with a reduction in the TS allowable values for the maximum instantaneous dose equivalent <sup>131</sup>I and the 48-hour value for dose equivalent <sup>131</sup>I would be acceptable. Therefore, the proposed change to allow a total primary-to-secondary leakage rate of 23.8 gpm for an MSLB is acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Alabama official was notified of the proposed issuance of the amendments. The State official had no comments.

### 4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the 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 the amendments involve no significant hazards consideration, and there has been no public comment on such finding (62 FR 49998 dated September 24, 1997). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 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 the amendments.

### 5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Attachment: Tables 1 and 2

Principal Contributor: J. Hayes

Date: October 29, 1997

**TABLE 1**

**INPUT PARAMETERS FOR FARLEY UNITS 1 AND 2 EVALUATION  
OF MAIN STEAMLINE BREAK ACCIDENT**

1. Primary coolant concentration of 9  $\mu\text{Ci/g}$  of dose equivalent  $^{131}\text{I}$ .

Preexisting Spike Value ( $\mu\text{Ci/g}$ )

$^{131}\text{I}$  = 6.95  
 $^{132}\text{I}$  = 2.49  
 $^{133}\text{I}$  = 11.1  
 $^{134}\text{I}$  = 1.68  
 $^{135}\text{I}$  = 6.1

2. Volume of primary coolant and secondary coolant.

Primary Coolant Volume ( $\text{ft}^3$ )	10,710
Primary Coolant Temperature ( $^{\circ}\text{F}$ )	578
Secondary Coolant Steam Volume ( $\text{ft}^3$ )	3,742
Secondary Coolant Liquid Volume ( $\text{ft}^3$ )	2,016
Secondary Coolant Steam Temperature ( $^{\circ}\text{F}$ )	518
Secondary Coolant Feedwater Temperature ( $^{\circ}\text{F}$ )	437

3. TS limits for DE  $^{131}\text{I}$  in the primary and secondary coolant.

Primary Coolant DE $^{131}\text{I}$ concentration ( $\mu\text{Ci/g}$ )	0.15
Secondary Coolant DE $^{131}\text{I}$ concentration ( $\mu\text{Ci/g}$ )	0.1

4. TS value for the primary-to-secondary leak rate.

Primary to secondary leak rate, any SG (gpd)	140
Primary to secondary leak rate, total all SGs (gpd)	420

5. Maximum primary to secondary leak rate to the faulted and intact SGs.

Faulted SG (gpm)	23.8
Intact SGs (gpm/SG)	0.1

6. Iodine Partition Factor

Faulted SG	1
Intact SG	0.1
Primary to Secondary Leakage	1.0

7. Steam Released to the environment

Faulted SG (lb/2 hours)	96,200 plus primary-to-secondary leakage
Intact SGs (lb/2 hours)	479,000 plus primary-to-secondary leakage

8. Letdown Flow Rate (gpm) 60
9. Release Rate for 0.15  $\mu\text{Ci/g}$  of Dose Equivalent  $^{131}\text{I}$

Ci/hr

$^{131}\text{I}$	=	1.2
$^{132}\text{I}$	=	2.7
$^{133}\text{I}$	=	2.9
$^{134}\text{I}$	=	4.2
$^{135}\text{I}$	=	2.9

10. Atmospheric Dispersion Factors ( $\text{sec}/\text{m}^3$ )

EAB (0-2 hours)	$6.4 \times 10^{-4}$
LPZ (0-8 hours)	$1.0 \times 10^{-4}$
Control Room (0-8 hours)	$3.3 \times 10^{-3}$

11. Control Room

Volume ( $\text{ft}^3$ )	69,000
Normal Makeup Flow (cfm)	1,350
Emergency Makeup Flow (cfm)	270
Makeup Filter efficiency (%)	99
Unfiltered Inleakage (cfm)	10
Recirculation Filter Flow Rate (cfm)	2,700
Recirculation Filter Efficiency (%)	95



TABLE 2

MAIN STEAMLINE BREAK THYROID DOSE ASSESSMENT  
FOR FARLEY UNITS 1 AND 2

Preexisting Spike

	<u>Exclusion Area Boundary</u>	<u>Low- Population Zone</u>	<u>Control Room</u>
Calculated doses (rem)	23.8	13.2	2.0
Regulatory Guidelines (rem)	30	30	30

Accident Initiated Spike

	<u>Exclusion Area Boundary</u>	<u>Low- Population Zone</u>	<u>Control Room</u>
Calculated doses (rem)	13.2	29.8	4.4
Regulatory Guidelines (rem)	30	30	30