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

SUBJECT:

ISSUANCE OF AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-2 AND AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. NPF-8 REGARDING MAIN STEAM SAFETY VALVES - JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 (TAC NOS. M91152 AND M91153)

Dear Mr. Morey:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 112 to Facility Operating License No. NPF-2 and Amendment No. 103 to Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2. The amendments change the Technical Specifications (TS) in response to your submittal dated December 19, 1994.

The amendments change the TS to (1) provide an as-found tolerance for the main steam safety valve (MSSV) setpoints of plus or minus three percent instead of the current plus or minus one percent, (2) revise the high neutron flux setpoints for two or three MSSVs being inoperable, and (3) update the bases of the MSSV TS to reflect the revised high neutron flux setpoints, and (4) make an editorial correction to the bases which changes psig to psia.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's bi-weekly <u>Federal</u> <u>Register</u> notice.

Sincerely,

(Original Signed By)

Byron L. Siegel, Senior Project Manager Project Directorate II-1 Division of Reactor Projects - I/II Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosures:

Amendment No. 112 to NPF-2
 Amendment No. 103 to NPF-8

3. Safety Evaluation

cc w/enclosures:

See next page

DOCUMENT NAME: G:\FARLEY\FAR91152.AMD

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Mr. D. N. Morey Southern Nuclear Operating Company, Inc.

cc:

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

Mr. B. L. Moore, Licensing Manager Southern Nuclear Operating Company Post Office Box 1295 Birmingham, Alabama 35201-1295

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

30-348/364

AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-2 - FARLEY, UNIT 1 AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. NPF-8 - FARLEY, UNIT 2

DISTRIBUTION:

Docket File **PUBLIC** PD II-1 Reading File S. Varga J. Zwolinski W. Bateman P. Anderson B. Siegel OGC G. Hill (2) C. Grimes - DOPS/OTSB G. Hammer C. Liang ACRS (4) OPA OC/LFDCB E. Merschoff, R-II

cc: Farley Service List



UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 112 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 December 19, 1994, 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:

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

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 112, 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

William H. Bateman, Director Project Directorate II-1

Division of Reactor Projects - I/II Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: March 1, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 112 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	<u>Insert Pages</u>
3/4 7-2	3/4 7-2
3/4 7-3	3/4 7-3
B 3/4 7-1	B 3/4 7-1
B 3/4 7-2	B 3/4 7-2

Table 3.7-1

MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES DURING 3 LOOP OPERATION

Maximum Number of Inoperable Safety Valves on Any Operating Steam Generator	Maximum Allowable Power Range Neutron Flux High Setpoint (Percent of RATED THERMAL POWER)
1	87
2	48
3	28

TABLE 3.7-2

MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES DURING 2 LOOP OPERATION

Maximum Number of Inoperable Safety Valves on Any Operating Steam Generator*	Maximum Allowable Power Range Neutron Flux High Setpoint (Percent of RATED THERMAL POWER)
1	**
2	**
3	**

^{*}At least two safety valves shall be OPERABLE on the non-operating steam generator.

^{**}These values left blank pending NRC approval of 2 loop operation.

TABLE 3.7-3
STEAM LINE VALVES PER LOOP

VALVE NUMBER	LIFT SETTING* (±3%)**	ORIFICE SIZE (SQ. IN.)
a. Q1N11VO - 10A, 11A, 12A	1075 psig	16
b. Q1N11V0 - 10B, 11B, 12B	1088 psig	16
c. Q1N11V0 - 10C, 11C, 12C	1102 psig	16
d. Q1N11V0 - 10D, 11D, 12D	1115 psig	16
e. Q1N11V0 - 10E, 11E, 12E	1129 psig	16

^{*}The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

^{**}After testing, the valves will be left at ±1%.

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within 110% (1194 psig) of its design pressure of 1085 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is at least 12,984,660 lbs/hr which is 112 percent of the total secondary steam flow of 11,613,849 lbs/hr at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-2.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Range Neutron Flux channels. The reactor trip setpoint reductions are consistent with the assumptions used in the accident analysis.

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power.

Each electric driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 330 gpm at a pressure of 1133 psia to the entrance of the steam generators. The steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 450 gpm at a pressure of 1133 psia to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 9 hours with steam discharge to the atmosphere concurrent with total loss of off-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.



UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 103 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 December 19, 1994, 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) <u>Technical Specifications</u>

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 103, 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

William H. Bateman, Director Project Directorate II-1

Division of Reactor Projects - I/II Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: March 1, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 103 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 Pages	<u>Insert Pages</u>
3/4 7-2	3/4 7-2
3/4 7-3	3/4 7-3
B 3/4 7-1	B 3/4 7-1
B 3/4 7-2	B 3/4 7-2

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3	28

TABLE 3.7-2

MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES DURING 2 LOOP OPERATION

Maximum Number of Inoperable Safety Valves on Any Operating Steam Generator	Maximum Allowable Power Range Neutron Flux High Setpoint (Percent of RATED THERMAL POWER)
1	**
2	**
3	**

^{*}At least two safety valves shall be OPERABLE on the non-operating steam generator.

^{**}These values left blank pending NRC approval of 2 loop operation.

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STEAM LINE VALVES PER LOOP

VALVE NUMBER	LIFT SETTING* (±3%)**	ORIFICE SIZE (SQ. IN.)
a. Q2N11V0 - 10A, 11A, 12A	1075 psig	16
b. Q2N11V0 - 10B, 11B, 12B	1088 psig	16
c. Q2N11V0 - 10C, 11C, 12C	1102 psig	16
d. Q2N11V0 - 10D, 11D, 12D	1115 psig	16
e. Q2N11V0 - 10E, 11E, 12E	1129 psig	16

^{*}The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

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3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within 110% (1194 psig) of its design pressure of 1085 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is at least 12,984,660 lbs/hr which is 112 percent of the total secondary steam flow of 11,613,849 lbs/hr at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-2.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Range Neutron Flux channels. The reactor trip setpoint reductions are consistent with the assumptions used in the accident analysis.

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

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The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 9 hours with steam discharge to the atmosphere concurrent with total loss of off-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.



UNITED STATES NUCLEAR REGULATORY COMMISSION

سيهشهم والانوار والمراورة والأوراد

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-2

AND AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. NPF-8

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-348 AND 50-364

1.0 INTRODUCTION

By letter dated December 19, 1994, Southern Nuclear Operating Company (SNC or the licensee) proposed license amendments to change the Technical Specifications (TS) for the Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley). The proposed changes will (1) increase the as-found tolerances for the main steam safety valve (MSSV) setpoints from the current \pm 1 percent to \pm 3 percent and (2) revise the high neutron flux setpoints under conditions when 2 or 3 MSSVs are inoperable. In addition, Bases Section 3/4.7.1.1, Safety Valves, has been updated to reflect these changes, and an unrelated editorial correction has also been made to Bases Section 3/4.7.1.2. At Farley there is a total of 15 MSSVs per unit (i.e., five per main steam line), each set at increments that range from 1075 psig to 1129 psig.

2.0 EVALUATION

2.1 MSSV Setpoint Tolerances

The requested changes revise TS 3/4.7.1.1 to increase the MSSV setpoint tolerance ranges from \pm 1 percent to \pm 3 percent to accommodate setpoint drift that may occur with these valves during plant operation. SNC reviewed the increased MSSV setpoint tolerance with respect to the accident analyses presented in the Farley Final Safety Analysis Report (FSAR). The licensee's submittal included the results of evaluations of the proposed change for loss-of-coolant accident (LOCA), non-LOCA and steam generator tube rupture (SGTR) events. The licensee concluded the proposed change will not adversely affect the pressure boundary integrity or safety function of the valves. The evaluation demonstrates that the acceptance criteria of the accident analyses continues to be met.

The licensee has determined that the proposed TS changes do not result in a significant reduction in the margin of safety. The limiting transient in each accident category has been analyzed to determine the effect of the change in the setpoint tolerances. Further, in order to prevent the setpoints from drifting outside the \pm 3 percent range, SNC will continue to require MSSV

setpoint tolerances to be restored to \pm 1 percent when the as-found lift setting exceeds \pm 1 percent prior to declaring the MSSVs operable. This will prevent excessive setpoint drift that would cause the peak system pressures to exceed the allowable limits.

The staff has reviewed the licensee's submittal and agrees with their conclusion that the analysis demonstrates the acceptability of the proposed TS changes. The proposed increase in the setpoint tolerances of the MSSVs has been shown to be acceptable for meeting the plant design basis. Also, for those occurrences where the as-found setpoints of MSSVs are in excess of ± 1 percent, resetting to within ± 1 percent of the nominal setpoint will be required prior to declaring them operable. Therefore, these proposed TS changes have no significant safety impact on the operation of Farley and are acceptable.

2.2 Neutron Flux High Setpoint With Inoperable MSSVs

Westinghouse has determined that the maximum allowable power range neutron flux high setpoints given in TS Table 3.7-1 may not be low enough to prevent a secondary side overpressurization during a loss of load/turbine trip. In Nuclear Safety Advisory Letter (NSAL) 94-001, dated January 20, 1994, Westinghouse reported their determination that the maximum allowable initial power level is not a linear function of available MSSV relief capacity. It was further determined that the current TS provisions for reduced reactor power levels with inoperable MSSVs may not preclude the secondary side pressure from exceeding 110 percent of its design value during a loss of main feedwater transient, particularly at lower power levels. The NSAL 94-001 also provided the licensee with an option to perform a plant specific analyses of the loss of load/turbine trip (LOL/TT) event to analytically determine the maximum allowed power level for a given number of inoperable MSSVs.

The licensee has performed a plant specific analyses of the LOL/TT event for Farley in accordance with the guidance contained in Westinghouse NASL 94-001 to determine the acceptable maximum reduced power levels for operation with 1, 2 or 3 inoperable MSSVs per loop. The plant specific analyses resulted in high neutron flux reactor trip setpoint values of 87 percent, 48 percent, and 28 percent of rated thermal power for a maximum of one, two, and three inoperable MSSVs, respectively, on any operating steam generator. These values are the same as or less than the corresponding current TS values of 87 percent, 65 percent and 43 percent for the same conditions.

The staff has determined that the plant specific analyses perfomed in accordance with the Westinghouse guidance ensures that the maximum power level allowed for operation with inoperable MSSVs is below the heat-removing capability of the operable MSSVs. This ensures that the secondary system pressure will not exceed 110 percent of its design value. In addition, the new setpoints are more conservative than the previous setpoints. Therefore, the staff finds that the proposed changes to TS Table 3.7-1 and Bases 3/4.7.1.1 are 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 amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 505). Accordingly, the amendment meets 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 amendment.

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: B. Siegel

C. Liang

G. Hammer

Date: March 1, 1995